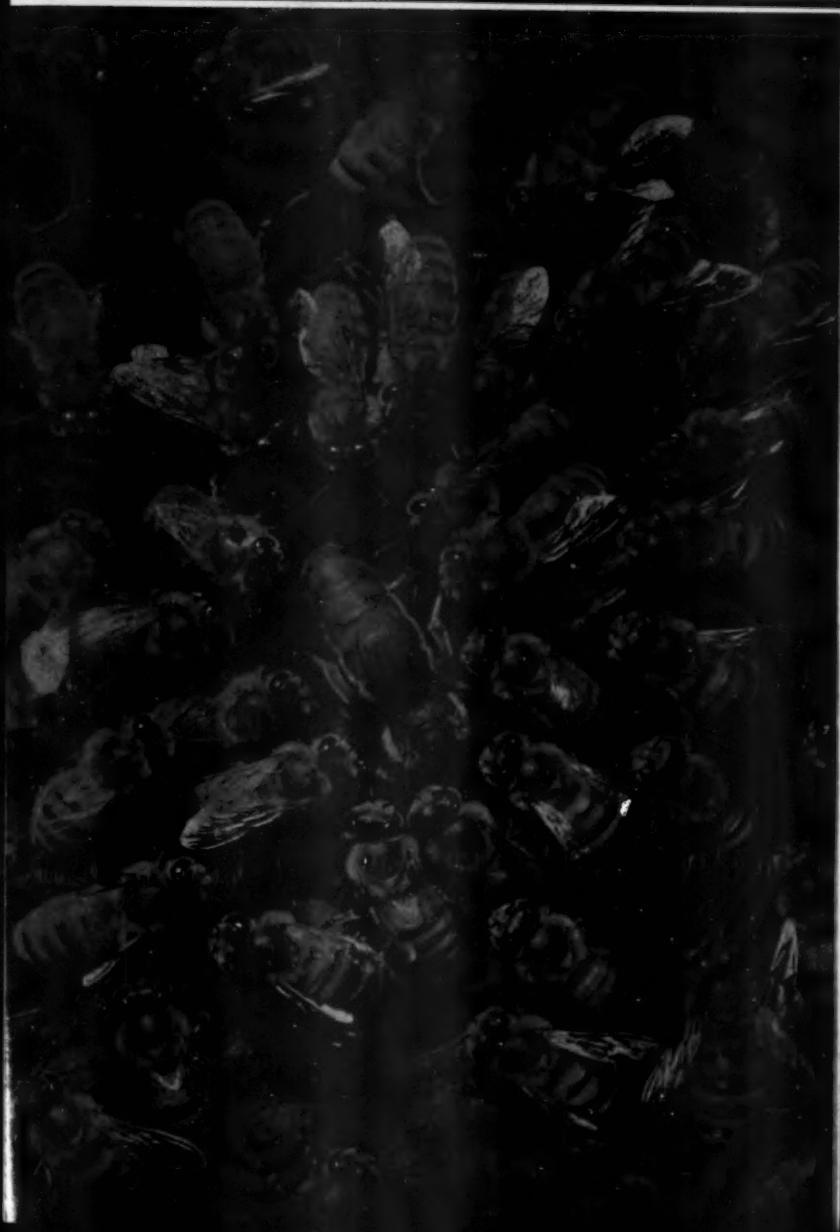


American Bee Journal



SEPTEMBER, 1951



VOLUME 91

NO. 9

A Family Treat



Cut comb honey in plastic bags, packed in display trays in counter cartons, a sure seller. Pack your honey attractively and cheaply in these beautiful containers. Well-drained chunks slip easily into the plastic bags and then fit snugly into open top display cartons. The bags are reusable in home and kitchen; the cartons are eye-appealing. The bags can be positively sealed from moisture, odors, and dust and prevent leakage. It's new — it's modern — it's effective.

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The Cover Winner
W. A. Stephen
Raleigh, N. C.



W. A. Stephen (left) holds the comb for Ralph Mills to photograph after pointing out the queen. Interesting to see just how the picture was taken.

An unusually good shot of a queen on the comb and her circle of attendants graces our cover this month. Mr. Stephen, Extension Beekeeper at North Carolina State College, and Ralph Mills of the College Department of Visual Aids cooperated in making it.

W. A. Stephen has been engaged as Extension Beekeeper at Raleigh since 1947 and is at present completing a thesis on *Nosema apis* for his Ph.D. degree. He was born in Ontario and graduated from the Ontario Agricultural College. After that came work at the Bee Division at Ottawa, a trip to Europe and some study at the University of Berlin. His masters work was taken at the University of Toronto and his doctors at the University of Wisconsin.

Ted Wellner Dies . . .

Anyone who has visited the bee exhibit at the Illinois State Fair in the last 15 years has seen Ted Wellner in his cage demonstrating live bees and answering questions of the assembled groups throughout the day. His activities brought publicity from radio and newspapers and acclaim from his associates who marveled at his good nature and willingness.

As usual Theodore Wellner did his stint this year at the fair returning home on August 19. The following

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WHEELING, WEST VIRGINIA

day he was examining his own bees near Joliet and dropped dead while at work in the apiary. Wellner, whose home was in Joliet, was one of the most efficient of Chief Killion's inspectors, always active in association work, and a power for good in his beekeeping community. He will be sorely missed.

No Acarine in North America

This office has recently been offered sole representation by a European firm for a dusting powder designed to rid honey-bee colonies of acarine (Isle of Wight) disease. That adult disease, fortunately, does not exist on this side of the Atlantic, so such an agency would be a "flop" here.

The Man of the House . . .

The articles in the Journal by Dr. Jarvis contain much of interest to laymen and prospective honey users. We use them in a local direct mail advertising effort. Our emphasis is on 5-pound jars and we find that on retail sales from our home, it is nearly always the man of the house who is interested in buying honey rather than the lady. It is also true that the man of the house is much more interested than he used to be in food values and his interest seems to be more open-minded than the lady of the house in a "cified" area.

Ardon F. Denlinger,
Ohio.

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Completed

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CANADIAN BEE JOURNAL

Canadian beekeepers have much in common with their neighbors in the U.S. If you are interested in bee activities "North of the Border," send us your subscription now. Subscription price, \$1.75 per year in U.S.A.

Canadian Bee Journal
54 Bloor St. West, Toronto 5, Ontario



A Prime Swarm (Photo by John G. Tanner)

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Vol. 91, No. 9

September, 1951

THE AMERICAN BEE JOURNAL

HAMILTON, ILLINOIS

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What's Going On

DEDICATION OF LANGSTROTH HONEY GARDEN

At the Morris Arboretum of the University of Pennsylvania in Chestnut Hill, Philadelphia there will be dedicated on Saturday afternoon, October 20th at 2 o'clock the Langstroth Honey Garden. The exercise will be held under the direction of the Arboretum. All beekeepers and other interested persons are cordially invited.

The speakers will be:

Dr. James I. Hambleton, of the Department of Agriculture Bee Laboratory at Beltsville, Md., on the interrelationship of bees and plants,

M. Albert Linton, President of the Academy of Natural Sciences of Philadelphia will speak on Langstroth's relations with the Academy, and Dr. Jacob R. Schramm, Director of the Morris Arboretum, initiator and developer of this enterprise, on its inception and objects.

The Memorial Garden recently initiated at the Morris Arboretum is expected ultimately to contain the principal shrubs and trees important in apiculture so far as local climatic conditions permit. While the emphasis will be on New World plants, some attention will be given to important bee plants from the rest of the world.

At long last Lorenzo L. Langstroth, the "father of modern bee-keeping," is to have a fitting memorial in the city in which he was born and in which he did most of his remarkable work.

Out of town visitors will be given an opportunity to visit the Arboretum in groups under the direction of members of the Arboretum staff at 11 a. m., and again at 4 p. m. For this purpose, they should go to the main entrance to the Arboretum on Meadowbrook Ave. The entrance to Bloomfield Farm, where the dedication will be held is on Northwestern Ave., between Germantown and Stenton Avenues. In the event of inclement weather, exercises will be held indoors at the Meadowbrook Ave., entrance.

F. W. Schwobbel

BANQUET TO FOLLOW DEDICATION

Reservations are being accepted for a banquet to be held in the evening following the dedication of the

Langstroth Honey Garden. The banquet will be just a short distance from the dedication site and is being arranged by the Montgomery County Beekeeper's Association. The cost of the banquet will be \$2.50 for adults and \$1.50 for children under 10 years. Reservations, if at all possible should be made before the 10th of October, as we will only be able to handle a limited number of last minute reservations. Include your check or M. O. and mail to me at 145 E. 14th Ave., Conshohocken, Pa.

Overnight accommodations in this area are generally good and easy to obtain, but anyone wishing to make reservations ahead may have this information by requesting it.

Paul G. Cummins

FOURTH ANNUAL SHORT COURSE

RICHMOND, VA., SEPTEMBER 7-8

The Fourth Annual Beekeeping Short Course in Virginia will be held in Richmond, Virginia, September 7 and 8 at the Jefferson Hotel.

The Virginia Extension Service is preparing the program, and the Richmond Beekeepers' Association is acting as host. The registration will be \$1. Rooms and meals are to be taken where the beekeepers desire.

George H. Rea, Reynoldsburg, Pennsylvania; Drs. J. M. Grayson and J. O. Rowell, and J. M. Amos, of V. P. I. will be on the program.

John M. Amos,
Assoc. Ext. Ento. Plant Path.

ANNUAL MEETING TEXAS BEEKEEPERS' ASSOC. COLLEGE STATION, SEPT. 24-25

The annual meeting of the Texas association is scheduled for Monday and Tuesday, September 24 and 25 at the Memorial Student Center, College Station, Texas.

According to tentative program arrangements, there will be speakers representing manufacturers and dealers in bee supplies and bee publications as well as men from the seven local and regional associations.

An important variation in the program will be the opportunity for beginners to see demonstrations in transferring bees, assembling equip-

ment, introducing queens, and handling honey.

Subjects discussed will include the activities of the committee on insecticide problems, pollination standards, production costs, foulbrood situation in Texas, research in insecticides and suggestions for improving relationships among beekeepers.

There will be an afternoon program in the College apiary, a barbecue picnic, and a "beekeepers' buzz" on Monday evening.

F. L. Thomas, Chairman
Program Committee.

OUTDOOR MEETING MIDDLESEX COUNTY BEEKEEPER'S ASSOC.

The fifth and last outdoor meeting of the association is to be held this month at the home and apiaries of one of the newer members, Carlisle H. Peckham at 140 Trenton Street, Melrose, Mass. Members and visitors are requested to bring picnic baskets, tables and chairs. This is the meeting when the "Club Hive", started at the last indoor meeting at Waltham, will be given to some lucky member. The hive now consists of a brood body and a food body and is in good condition and should winter well. These are Italian bees with a fine queen and are gentle as the hive was inspected at the last meeting in cool, damp weather.

John H. Furber, Sec'y

TAZEWELL COUNTY BEEKEEPERS ASSOC. SOUTH PEKIN, ILL., SEPT. 9

Tazewell Beekeepers will meet again on Sunday, September 9 at the home of George Berry in South Pekin, Ill. Activities will start at 1:00 P. M., D. S. Time.

A wiener roast and a lot of fun will precede the meeting and a good program has been arranged. Come and enjoy yourself and tell us all about the big crop your bees did (did not) bring in.

Joseph Jachman, Sec'y

DALLAS IN 1952

Arrangements for the next annual meeting of the Federation have advanced to the point of fixing the time and place, January 17, 18 and 19, 1952 at Dallas, Texas. Headquarters will be the Baker Hotel.



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What's Going On

THE STAR SHINES BRIGHT

There is an old saying, "Where there is a will, there is a way." There is evidence to indicate that American beekeepers are restoring their will, and are beginning to find the way to a more substantial tomorrow.

Two recent mid-western meetings offered substantial proof of this. A group of some 150 Iowa and Nebraska beekeepers met at Council Bluffs. A smaller group of Nebraskans met at Arcadia. The purpose? To eat too much at the picnic tables; to make new acquaintances; to shake hands with a fellow beekeeper you have not seen for a year or more; to sit down in the shade and chew on a blade of grass while you discuss common problems; and to listen to the words of the speakers.

Nothing new in this. It's been done for years. But, the picture is changing. Beekeepers are again taking interest — the discouraged look is being replaced with one of confidence. Questions are asked about new and better ways of packing their crop of honey—about better ways of marketing—about gift packs—about containers—and labels that will attract attention. Pollination? Try to avoid the subject at a beekeeper meeting! Support of organization? Never better than at these two meetings. Federation support reached the unbelievable level of one hundred per cent of all beekeepers present. Many had already offered their support; the rest extended their helping hand during the day.

Of course, those attending these two meetings represent only a small fraction of the total, but if they can be taken as a fair sample we can be certain that tomorrow will be better than today.

Edw. A. Wolfe, Publicity Director, American Beekeeping Federation

NEW OFFICERS INDIANA STATE BEEKEEPERS ASSOC.

Officers recently elected by the Indiana State association are: President, Walter R. Biefield, Terre Haute; Vice President, D. G. Rutherford, Lafayette; Secretary-Treasurer, Gilbert Perigo, Indianapolis; Directors, Ross B. Scott, LaGrange; Chester E. Shepherd, Brownstown; A. M. Brand, Indianapolis; Noah Todd, Marion.

JOINT MEETING WHITE PINES STATE PARK SEPTEMBER 19

The Rock River Valley Beekeepers' Association will meet with the Kane-DeKalb Association on Sunday, September 9 at White Pines State Park, Oregon, Illinois.

Virgil T. Goodrich, Sec'y

CHESTER COUNTY BEEKEEPERS ASSOC.

ELVERSON, PA., SEPTEMBER 15

The next regular meeting of the association will be held on Saturday, September 15 at 2 P. M. at the Walnut Lane Turkey Farm, Albert Palmarie, Prop., at Log Corner two miles south of Elverson. The speaker will be Paul Holcombe of New Jersey.

Hugh S. Roberts, Sec'y

MONTGOMERY COUNTY BEEKEEPERS ASSOC.

GILBERTSVILLE, PA., SEPT. 8

The next meeting of the association will be held at 2 P. M. Saturday, September 8 at the home apiary of Lester Baer, R. D. 1, Gilbertsville, Pa.

"Creamed Honey"

This is the title of a four-page folder in brown and yellow from American Honey Institute, Madison 3, Wisconsin. It is the first release of its kind and discusses the product and gives recipes and general uses for creamed honey as a spread, cake topping, cookey filler, in mixtures of butter or peanut butter. If you are interested, write American Honey Institute at the address given.

"Feeding Pollen Supplement And Pollen Substitute To Honeybees" . . .

This is the title of Extension Bulletin 237, Utah State Agricultural College, Logan, Utah. It is a folder of six pages discussing the feeding of pollen supplement and substitute, their preparation and use, and where the materials for making the feed can be obtained.

E. F. Phillips

1878-1951

As we go to press we learn by telegram of the death of Dr. E. F. Phillips which occurred at Ithaca, N. Y., on August 21. Thus passes another of our illustrious beekeeping scientists and writers.

Dr. Phillips was born in Ohio in 1878. After his college years his whole life was spent in the government and state beekeeping departments. He entered temporary service in the Bee Culture Laboratory in Washington under Frank Benton in 1905. In 1907 he succeeded Mr. Benton as head of the department. Here he remained until 1924 when he resigned to take the chair of beekeeping at Cornell University, which he held until his retirement in 1946.

Probably no man in beekeeping was better known the world over than E. F. Phillips, through his official bulletins; his correspondence; and his book, "Beekeeping."

A more complete review of his life will appear in our October number.

Jarvis Reprints Now Available . . .

Our readers have now available reprints of the various articles on honey and health by Dr. D. C. Jarvis appearing in the American Bee Journal since July 1950.

To avoid excessive cost some of the articles have been reproduced two on one sheet, making a series of eight sheets now available. These articles are listed together with prices on another page of this magazine.

Some will want to order the reprints in quantities for general distribution, while others may want single sheets for submission to local newspapers. The reprints fit either need admirably.

New Edition — "Beekeeping in Antiquity"

Our readers will welcome the appearance after 20 years out of print of a second and revised edition of H. M. Fraser's book "Beekeeping in Antiquity." This is a 150-page cloth bound book delightfully instructive of the old beekeeping and its champions.

Similar to the first edition appearing in 1930, many additional transla-



Elmer Carroll Passes

E. Elmer Carroll, editor of Beekeepers' Magazine, passed away on August 5 at Lansing, Michigan, at the age of 50. Carroll started the "Michigan Beekeeper" as a quarterly in August 1938. It was changed to a monthly in December 1939, and the name was changed to "Beekeepers' Magazine" in 1942. Devoted chiefly to Michigan beekeeping and Michigan beekeepers, Carroll and the magazine gained nationwide renown.

Carroll was an excellent editor. As a man he was an example from whom we might all take a lesson. Suffering for years with acute arthritis, Elmer remained always a cheerful, enthusiastic and energetic man. He was not only a lesson, but an inspiration to anyone who was in contact with him. A few days before his death he had planned to attend the Ohio State Meeting at Medina. Such was his indomitable spirit, ably abetted by the help of his wife and daughter, Nancy. No one could have been more appreciated nor better loved than was Elmer Carroll by his cooperating group of Michigan beekeepers who made their last tribute to him at his funeral, pallbearers being B. C. Woodman, D. P. Barrett, Howard Potter, E. C. Martin, William Staack, and Don Kloepfer, all of Michigan.

In addition to his editing, Carroll was a life member of the Michigan Beekeepers Association as well as its business manager. In 1949, an honorary certificate of Registered Apiculturist was granted to him by the New York-New Jersey Apicultural Board. He was active in Boy Scout work, and a working member of both the Institute and the Federation.

Elmer Carroll shall always be remembered as a genuine patriot and a genuine example of a man.

tions of Latin and Greek quotations have been included besides corrections of other material in the book.

The call for this book has been significant in the past few years. We are stocking it here at Hamilton, for the convenience of those interested, at a postpaid price of \$2.00.

The present edition was published by the Apis Club in England.

Michigan Advertising . . .

Michigan has an agricultural advertising fund. They allot \$800.00 to the beekeepers every year. The bee-

keepers must spend \$1,000.00 and submit the paid bills. Then they get \$800.00 back. This is something that they cannot afford to pass up, or it will go to some other farm project.

Each year they have been having a time to raise the money. Two years ago we (A. G. Woodman Company) raffled off a 30-frame Radial extractor and other prizes, selling five chances for \$1.00. This was a source of some money for this fund.

This plan can be used to advantage in other states to advertise honesty within the state.

A. G. Woodman.



Will Buckwheat Make a Comeback?

by Walter Barth

RUTIN, a new drug extracted from buckwheat plants, may soon be responsible for increased acreages of this dependable honey source. The beneficial properties of this drug were discovered at the Eastern Regional Research Laboratory of the United States Department of Agriculture, and this material is being produced by many pharmaceutical concerns throughout the country. As a result of this research, 50,000 acres of buckwheat will have to be planted to provide enough raw material for the production of Rutin. The estimated return to farmers should reach about \$2,000,000 yearly.

Rutin may not be a cure-all, but it will bring comfort to many. This medicine is effective in treating many hemorrhagic conditions such as frostbite while it also strengthens weak capillary blood vessels and is rapidly becoming a ray of hope for those afflicted with hemophilia. The fact that Rutin aids the healing of X-ray wounds offers hope that it may benefit persons exposed to atomic radiation. Needless to say how important this drug might be to all of us.

A little more than a hundred years ago, August Weiss, a pharmacist from Nuremberg, Germany, obtained Rutin from garden rue, *Ruta graveolens*, from which it derived its name. Although Rutin was soon discovered in other plants, it remained unimportant until the scientists of agriculture learned of its po-

tentialities. This drug is so widespread in nature that it has been reported from approximately 40 species of plants. Some of the plants included in this group are the buckwheats (*Fagopyrum esculentum* and *tataricum*), Chinese scholar tree (*Sophora japonica*), yellow pansy (*Viola tricolor*), elder (*Sambucus canadensis*), forsythia (*Forsythia suspensa* and *fortunei*), tobacco (*Nicotiana tabacum*), and asparagus (*Asparagus officinalis*).

During the early experiments, Rutin was obtained from flue-cured tobacco, but the low yields and the expensive material made this source uneconomical. Further research showed buckwheat to be a cheap source of this material, since it was possible to get 3 to 6 per cent Rutin on a dry weight basis. Although Japanese and Silver Hull (*F. esculentum*) species of the grain can be used, the Tartary (*F. tataricum*) proves to be superior. The drug occurs in the leaves and blossoms and can be extracted from the fresh or dried plant.

Japanese or Silver Hull buckwheat is commonly grown in the United States, while the Tartary, commonly called rye buckwheat or duckwheat, is a newcomer to the beekeepers. It will be interesting to learn whether the new variety will yield nectar as freely as the common types. Everyone is familiar with the experience of the late E. W. Alexander, of New York State. This beekeeper harvested a surplus of honey from

200 colonies of bees in a location that scarcely had 100 acres of buckwheat within easy flight range. There is little question about the value of this honey plant in areas where proper environmental conditions exist.

The nature of buckwheat makes it an interesting subject for study. It originally came from Asia and was introduced into America from Europe. The peculiarity of the plant centers about the nectar. Buckwheat blossoms will yield nectar in the morning decreasing amounts toward noon and cease entirely in the afternoon. This condition is well known to apiarists of the buckwheat regions of New York, Michigan, and other areas. Denied this rich source of nectar, honey bees will often become very irritable and make further work with them unpleasant.

Unfortunately, the buckwheat may be cut while in blossom, but the large acreage of the grain should provide plenty of bee forage even though the duration of the nectar flow is limited. However, the harvest period can be prolonged if Tartary buckwheat is planted in preference to other varieties. Investigations reveal that Tartary buckwheat produces greater yields per acre, is 45 to 80% richer in Rutin, and has more foliage per acre than the Japanese variety. The quantity of leaves on each plant is important since most of the Rutin is in the stem and blossoms. Further study has shown that the Rutin content of

Tartary buckwheat remains high after the seeds have formed. The importance of this research is obvious. If farmers were to plant the Tartary variety, it would be possible to let the crop go to seed without any loss of Rutin and the bees would have the maximum time to harvest a crop. The critical harvest period for other buckwheat may discourage its use as a source of Rutin.

In the Finger Lakes Region of New York, the buckwheat acreage has been on the decline since the war. Consumer reluctance towards buckwheat products may be the reason for the farmers' low returns on this grain. Local beekeepers are

much concerned over the increase of nonnectar-yielding plants. However, the demand for Rutin should encourage increased production of buckwheat.

Rutin has been available from druggists since the autumn of 1946 and has since become a valuable therapeutic agent. Once again agriculture and medicine have teamed to bring aid to those who saw little hope of relief. The persistent efforts of J. F. Couch and others of the U. S. Department of Agriculture produced this drug which is the basis of a new industry and the return of a vanishing source of honey.

New York

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A Bite from Heaven

by T. J. Wells

ONE business man tells another at the office, "Boy! I had honey and hot biscuits for breakfast," and the other fellow can hardly wait until quitting time to hurry to that beekeeper or grocer to get a jar of honey, so he can have the same the next morning. It works exactly like the woman with the new shoes. Let one woman get a pair of shoes with the toes out and they will all be wearing toeless shoes. It used to be when my wife's toes were showing, I had to buy her a new pair. The point is, you are going to have to sell that first man the honey.

Now I know a lot of businesses that give each of their employees a parcel of food and a bonus at Christmas time. Around November 15 some of you beekeepers who have cases of mild, white honey stacked to the roof, could contact these business heads and sell them on the idea of giving their employees a case of honey for Christmas. I'll wager when it was gone, nine out of ten would be looking for more honey about February 1.

I knew beekeepers who sold their honey in hard times for 10c per pound when good honey was advertised in carload lots for 4c per pound.

Several years ago I talked to a man who hadn't bought a jar of honey in all his life. I finally sold him a jar, and within a week he was back for another. The next time

he came I sold him a 60-pound can because, as he said, he didn't want to bother me so much buying it in small jars.

Another thing that will sell honey is a sign at your gate. You will be surprised what that little reminder will do for you. I believe it will sell from 10 to 50% of any beekeeper's crop at a good price. Now some of the beekeepers who read this may say, "Yeah, he has only 58 colonies to sell the crop from, if he had 500 cans in his honey house like I have he wouldn't go to the national convention either."

To him I want to say that I once knew a man who had a pack of common "pot hounds." He ran out of money, so he went to the town banker to see if he could borrow \$60.00 on his dogs. The banker laughed and refused to loan him the money. But within a week the man sold one of the hounds for \$500.00. He must have been a good salesman. He could have done well had he been a beekeeper. Had he had 500 cans of honey, he would probably have made a fortune by making candied honey, cutting it into small squares and dipping them in chocolate, and selling "A BITE FROM HEAVEN" candy bars.

Now we beekeepers have a very superior product, one that has superior taste and nutritional value. LET'S SELL THAT FIRST MAN!

Oklahoma





Let the Sun Work for You

by G. H. Cale

IT is said that the military needs beeswax for various purposes and that normal use of beeswax, added to the emergency needs, calls for more beeswax than we can supply unless we step up our production considerably. This gives us a patriotic motive for self-interest. Since beeswax prices are high it is just good business to produce all you can of it. This series of wax articles is intended to suggest ways to get more wax than we normally secure and, if high prices and patriotism make us change our habits for the better, we shall have built up good habits in the production of wax that will continue to add to our income as the years pass.

That there is more wax wasted than saved may seem to some a rash statement but, if you go about among beekeepers, and you read these articles attentively, you may begin to agree. It is not that beekeepers waste cappings or combs; it is not that they don't save what wax they normally get; but what we are trying to show is that they waste the small lots either through inadvertence or neglect or failure to make an effort to change. Also that most of us fail to do a few simple things that will add materially to the wax we get each year.

One piece of equipment that will help us retrieve wax usually wasted

is the solar wax extractor. I think I am as guilty as anyone in not using the solar to advantage. Let's consider the solar for a bit and see just what it is and what it will do for us.

In the first place it is not hard to make. One can use any box, open at the top, a tin wax pan inside and a catch pan at its end. A piece of glass, even just set on top, completes a rough solar. You can go on from there and refine it as you wish. The glass can be in a frame like a window, hinged to the side or end of the box. Legs can be added to the box and the entire device painted. You can paint it to match the garden or the leaves! Ours is black.

One end of the solar should set higher than the other to give the wax pan inside a slope. The lower end of the pan should have an outlet to allow the melted wax to run into the catch pan. When the latter is full remove it and let the cake of wax cool.

When the wax is cool, heat the pan just enough to let the cake slip out entire. This cake is clean and ready for market.

If you fasten a coarse screen piece across the outlet in the wax pan it will hold back debris. The screen should be cleaned regularly to keep it functioning. Your wax pan can be further refined if you fasten a

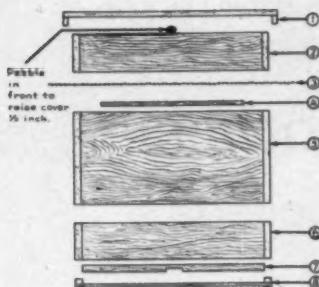
course screen above the bottom so the comb lies on this screen and the melted wax runs through and is less obstructed than it is when the comb is placed right into the bottom of the pan. This screen is best when it is made in a frame with short legs so it may be taken out and cleaned when necessary.

So much for plan and refinements. Now let's see how it may be used. It will take full combs, wax scrapings removed as you work your bees or burr combs from the hives. If you work your bees often enough during a honeyflow, you can put two or three frames in one or two of your extracting supers, with inch strips of foundation fastened at the top bars. The bees will add wax of their own to these starters and, whenever you work the bees, this wax, honey and all, can be cut off enough to leave an inch below the top bars from which the bees will again build out another batch. If the wax is messy, place it above the inner cover, with the center hole open, and a super shell below the outer cover. The bees will clean it up and on the next visit it can be removed to the solar.

It reads like a time consuming job; actually it takes only a minute or two per colony. The total result from care in producing and saving the wax however can result in adding a pound or two more wax per colony each year. Right now two pounds more beeswax than you have been getting will increase your gross return by at least one dollar.

From that figure it begins to make sense. There may be other ways you can use to increase the wax return. You might double that dollar. By doubling it you might pay a fair part of your operation cost. In itself that can be translated into regarding it as getting more net return from your honey whatever your market may be.

The solar does not take the place of wax that you get already in other ways; by comb culling (which we all could do better); by deeply cut cappings (often returning 18 pounds of wax per 1000 pounds of honey); by scraping top bars and bottom bars while uncapping and so on. Rightly used, the solar is one piece of equipment that will give us more profit from the bees. If one solar is not enough make two or more. Keep them in a sheltered spot away from wind where it is quiet and where the sun will shine full on them. Put the sun to work for you.



Front view of hive in exploded arrangement showing how hive is assembled for use of top packing.

1. Standard hive cover.
2. Extracting super filled to a depth of five inches with sawdust and planer shavings.
3. Burlap.
4. 5/16 inches square wooden spacers 12 inches long.
5. Brood chamber.
6. Extracting super full of honey.
7. Entrance closure— $1/4 \times 1 \frac{1}{2}$ inches.
8. Bottom board.

THE wintering method to be described in the following is one that has been tested by the author over a period of seven years with such success that during this time there have been no losses in my small apiary due to cold weather. This method was first evolved and tested in Wyoming during the winter of 1938-39 when due to a severe winter, outdoor temperatures reached a low of -40° F. The method was later tested in Denver, Colorado, and last year was tested in northeastern Indiana.

The plan has been tested only on Modified Dadant hives but would undoubtedly be 100 per cent effective on standard 10-frame hives. The plan must follow good wintering preparation in that the colony must be queenright and have a good force of young bees. The plan indicates good adequate food stores by the presence of the shallow extracting super of honey below the brood chamber. This might be omitted, providing the winters are not excessively long as they are in Colorado and Wyoming and in instances where the colony is crowded during the fall honeyflow and the brood chamber is well packed with honey and pollen. In the use of the M.D. hive this would represent a total hive weight of at least 80 pounds.

The cross section of the hive (see illustration) shows the method of assembling the hive with the extracting super of surplus food placed immediately above the bottom board. Above this is the brood chamber. Crosswise on the broad frame top bars are six or more $5/16$ " square

Top Packing for Wintering

by R. S. Sink

wooden strips, 12" long. Upon these wooden spacers, a piece of burlap or reed matting is spread and for convenience is allowed to extend about 3" on the outside of the hive at the two sides. Above the burlap cover an empty super is placed and filled to a depth of 5" with sawdust and planer shavings. The usual outer cover is placed on the super and is held up at the back $1/2$ " with any convenient spacer (usually a small pebble). The hive entrance is closed to about $1/4$ " by $1-1/2$ " and the preparation is completed.

Inspection of the sawdust during the winter may reveal a wet or damp condition. Should this occur, the cover should be raised to about $3/4$ " to allow the packing to dry out. It will be dry in about 48 hours and will show a warm dry condition when the hand is inserted in the sawdust down to the burlap.

It is recommended that this cover be left on the hive until the early spring cold has passed to assist the colony in maintaining brood-rearing temperature in the hive. Early brood rearing without stimulation by feeding takes place naturally and early high colony strength results. The super above the bottom board will be emptied of honey stores early in the spring and results in extra

space for the increasing colony population. Swarming need not be anticipated until near the period of the main honeyflow and observation of colony strength will indicate when additional supers are necessary to provide space for the colony.

In concluding the instructions for following this plan, it is to be noted that the inner cover is not to be used under the outer cover. The packing must breathe and remain dry and this condition cannot be achieved if the inner cover is left in the assembly.

Small colonies covering but five frames in an M.D. hive have been successfully wintered in northeastern Indiana by this method and have built up early to full colony strength. These small colonies have always produced a creditable honey surplus during the following season. In these instances the surplus winter food is provided by inserting full extracting frames of honey in the brood chamber.

The essential items of this method are: A dry and warm cover above the bees and the crosswise wooden pieces to enable the cluster to move sideways over the frame top bars to new stores of food as the winter progresses.

Indiana

A New Book on Legumes

"Forages—The Science of Grassland Agriculture" is the title of an outstanding new book just published by the Iowa State College Press, Ames, Iowa. The book was produced under the editorial authorship of H. D. Hughes and Darrel S. Metcalf of Iowa State College and Maurice E. Heath of the Soil Conservation Service, with 52 additional contributing authors, selected for their recognized leadership in the field of grassland agriculture.

The 724 pages comprising the book are divided into four parts: Forages and a productive agriculture, the forage grasses and legumes, forage production, and forage utilization. The book is an example of the finest kind of book making, is very read-

able, and is capably illustrated throughout. It is a splendid addition to the literature of forages and their use in grassland agriculture. Everyone interested in the production of legume seed crops and a stabilized type of agriculture will find this publication invaluable. It can be obtained through book stores or from the publisher for \$6.75.

The part that honey bees play in the production of many of the legume seed crops is mentioned in relation to the specific legumes in the second part of the book. Pollination also is discussed more generally in a chapter entitled "Legume and Grass Seed Production" by E. A. Hollowell, principal agronomist, Division of Forage Crops and Diseases, U.S.D.A.

Students of commercial beekeeping or of research in pollination or queen breeding find the courses they seek at this rapidly growing school.

The Agriculture Department

Ontario Agricultural College

Guelph, Ontario

by G. F. Townsend*

FOR more than twenty-five years the Department of Apiculture at the Ontario Agricultural College has been autonomous with departmental standing. Under this department is handled all of the teaching, extension, research and regulatory work associated with beekeeping for the Province of Ontario. This College is the only one in Canada, and possibly the only one of its kind, offering a complete undergraduate course in apiculture which leads to a degree as a specialist. In this department have been trained most of the professional apiculturists within Canada, and many who have gone to the United States.

The building which houses this work is entirely devoted to apiculture. The upper floor consists of one large elevated lecture room, which will accommodate approximately two hundred people, and can be used for both lecture purposes and beekeepers' meetings. On the main floor are three research laboratories and offices combined to house the research and regulatory staff. In addition, there is a library and three general offices. The basement houses a students' research laboratory, an up-to-date honey house, a processing and packing room with a large walk-in refrigerator, and a workshop. This department also has under its control fifty feet of standard greenhouse space for research purposes. Besides the bee yard which is located behind the apiculture building, there are three outyards in which are operated in the neighborhood of two hundred colonies of bees.

There is also associated with the research program the Pelee Island queen rearing project, situated not far from Detroit (in Lake Erie),

where some two hundred colonies of bees are operated along with five hundred or more nuclei.

The staff consists of men trained in several fields related to apiculture, including chemistry, entomology, apiculture and plant physiology, as well as a beekeeper of many years' experience appointed as technical instructor and foreman of the bee yards.

The research program embodies two main fields—pollination and queen breeding. The pollination work is carried out under two committees, The Legume Research Committee and The Tree Fruit Research Committee, which embrace several departments at the Ontario Agricultural College as well as other research stations under Dominion or Provincial jurisdiction. On Pelee Island the various strains of queens are produced and crossed, and at the bee yards in Guelph the various hybrids and other strains are compared and tested. During the summer months approximately five students are employed to assist in carrying on the research program.

In the teaching field, two different courses are offered—one leading to the Degree of Bachelor of Science in Agriculture as a Specialist in Apiculture, and the other, the Degree of Master of Science in Agriculture in the Graduate School. All students at the Ontario Agricultural College take the same course for the first two years. During the final two years they specialize in whichever department they wish to take special training. During the third and fourth years the Specialists in Apiculture are given such courses as physiology, behavior and genetics

of the Honey Bee; a study of beekeeping equipment and apiary products; bee diseases; history of beekeeping; honey technology; and commercial beekeeping. In the Graduate School is offered a course in research methods as applied to apiculture problems.

The head of this department also acts as secretary of the Ontario Beekeepers' Association, thus keeping a very close tie with the industry, both in the arranging of meetings and looking after the general welfare of the industry.

Next page, reading from left to right:

General view of the mating yard on Pelee Island, showing nuclei in foreground, cell building and breeder colonies in background, and grafting house. Nuclei are placed irregularly and weeds left to grow. This improves considerably the success in mating.

One of the colonies at the back of our building packed in tar paper which we use with most of our bees.

View of the front of the apiculture building.

Section of the yard back of the building showing colonies packed for winter.

(Below) View of one section of a stock testing yard on College grounds. Colonies are placed thirty feet apart and not protected. In summer, fronts of hives are painted different colors to help avoid drifting.

A section of the library of the Apiculture Department, showing a student at work.

(Left) A section of the workshop.

A section of the straining and processing room, showing the strainers and passers.

The students' laboratory, showing one of the students at work.

(Left below) A section of the honey house, showing the drying room in the background.

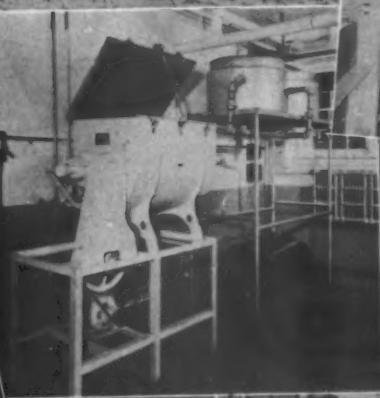
Dr. Shuel's research laboratory where much of his research in connection with nectar secretion studies is carried out. This is Dr. Shuel at work.

Note: The two students shown in the photographs will graduate this year as Specialists in Beekeeping. The one at work in the laboratory is Mr. John Shuel. The one studying in the library is Mr. Don Peer, who will be going to Wisconsin to take graduate work.

The man working in the extracting room and the work shop is Mr. Adie, who is in charge of our bee yards.

(Photos courtesy Extension Department and Department of Public Relations, Ontario Agricultural College, Guelph, Ontario)

* Professor of Apiculture and Head of Department of Apiculture, Ontario Agricultural College, Guelph, Ontario, Canada.



Much Requeening Needed?

We are often asked when a colony should be requeened. Our answer is, invariably, when the colony needs it, whether it is in the spring, summer or in the fall.

But occasionally there are seasons which are out of the ordinary which may call for added precautions. In almost all of the central, eastern and northern clover sections this seems to be the case this year.

While egg laying was not extraordinarily early this spring, since the season opened up there has been an almost continual inducement for the queens to lay because of intermittent honeyflows punctuated by spells of cooler weather and rainy days. This not only means that there has been a constant demand on the queen to lay eggs for replacement of

worker bees whose wings are frayed by toil, but appearances are for a continuation of honeyflows from the clovers right through to the later summer and fall flowers.

Particularly if colonies are headed by second year queens there is the probability, unless the bees do the requeening themselves, that many colonies may have at their head queens which are on the way out, and may either fail to provide eggs for a young worker force for the winter, or such queens may fail to survive with vigor into the next spring season.

So, it looks like this season in the areas with the type of weather and type of flora described above, the careful beekeeper will be giving some attention to the quality of the queens heading his fall colonies.

How I Introduce Queens

by George M. Moffit

It is good practice to introduce a young queen whenever you find the old one has started to slow up. As a general practice, I requeen in the fall, after most of the honey is off, replacing all two-year-old queens and any that have not done as well as they should. There are several reasons for requeening in the fall. There is generally more time then than in the spring. If you have to buy your queens, they are cheaper, and are likely to be better queens than those you get in the spring. The bees are more likely to accept them after the honeyflow than when they are getting ready for it. A young queen will lay later and heavier than one that has been laying all summer to produce a crop, thus building up the colony for winter. The condition of a colony in May and June depends considerably on its condition at the start of winter.

How to introduce depends on your bees—some will take a queen at any time, and any way you want to put her in; others will give trouble regardless of how or when you try to put in a new queen. I have killed the old queen, released the new one

at the entrance and smoked her in. If the colony will accept a queen in this manner, and I find most of mine will in the fall, it is the easiest way of all and she will be laying in a day or two. I have found them laying in half an hour. After the old queen had been taken out I have dipped a new queen in thin sugar syrup and put her on the combs without any smoke or fuss. I once did this with a valuable breeder queen that I had received that morning in the mail, to prove to a doubter that it could be done. Next day I showed him the queen, laying as though she had always been there.

For Italians, I believe the safest way is with a cage that I recommend to my customers. I got the idea from Mr. P. W. Burke, Assistant Provincial Apiarist. Lay the shipping cage in the center of a piece of wire cloth $3\frac{1}{4}$ " square and fold the sides along the sides of the shipping cage. Then along both creases cut in $1\frac{1}{16}$ " from the end. Bend the center section in to match the sides, and the ends of sides around against the end. This makes a push-in cage open at one end. Now

put your shipping cage, screen side down in this cage, with the zinc-covered hole in far enough to tack the end of push-in cage sides to the sides of shipping cage, leaving about 2" of cage for the bees and queen when pushed into the comb. Have your comb (with some honey, but mostly empty cells) handy. Now, carefully remove zinc screen from shipping cage, with knife blade or hive tool, and push the edges of the screen cage down into the comb, so that you have a few cells of honey, but more empty cells, enclosed in your cage. (You can put a few newly emerged bees in the shipping cage first if you wish.) The queen will be fed through the screen, and probably start to lay, before the colony releases her through the candy hole. Place this comb at the side of the brood nest with cage side in. With Caucasians, you can forget about it. But with Italians or hybrids, you had better make sure you remove all queen cells in five days. In any case, do not use queens from a swarming colony. Swarming can be bred out. Definitely.

Ontario, Canada

American Bee Journal



**BAUSCH & LOMB
HONEY REFRACTOMETER**
Catalog No. 33-45-34

The Bausch & Lomb Honey Refractometer fills the need for a satisfactory field and factory instrument for determining the moisture content of honey. With this instrument, a direct reading of 0.1% of moisture can be obtained, thus eliminating the need for referring to the Chataway tables. The scale of the B&L Honey Refractometer covers the range from 12.5 to 27%.

Because of the unique optical system, only a few drops of the sample are required for examination. The drops are placed between the prism and the prism cover, and the scale is observed through the prism. The even divisions of the scale appear on the left side, and the odd divisions appear on the right side. This readily enables the reader to obtain a direct reading to 0.1% of moisture. Readings are made by noting the intersection of the sharp, distinct field-dividing line and the scale. The orange colored filter which is a part of the optical system enhances the crispness and aids in compensation.

A special feature of the Bausch & Lomb Honey Refractometer is the provision for temperature correction when the sample is at a temperature other than 20°C. A thermometer graduated in per cent of moisture, which should be added or subtracted from the scale reading, is attached to the instrument. This thermometer dispenses of the necessity for using conversion tables or correction factors.

Sturdy mechanical construction protects the optical system, and there are no loose parts to become lost in field use. A leather carrying case, with zipper, is furnished with the refractometer.

Specifications

Catalog No. 33-45-34—Bausch & Lomb Honey Refractometer reading 12.7 to 27% moisture content (based on Chataway tables). Complete with case \$165.00

Hawaiian Beekeeping

The Industrial Research Advisory Council of Hawaii has published a 32-page brochure "Rehabilitation of the Beekeeping Industry in Hawaii." The bulletin was written by Dr. J. E. Eckert of the Department of Entomology at Davis, California, who spent three months in the fall of 1950 on the Islands.

Beekeeping reached its peak in Hawaii in the 20's and early 30's, then declined rapidly due to the influx of American foulbrood and hastened by the depression of the 30's.

AFB, year-round wax moth and Argentine ant are the principal enemies of Hawaiian beekeeping. Dr. Eckert recommends better management, inspection at least twice a year for AFB, smaller aparies, better equipment including properly wired bee comb foundation, better queens and more frequent requeening, substitution of wax presses for the ordinary solars for melting up old combs and cappings, a better marketing system, the issuance of a bulletin on proper beekeeping procedure by the Hawaii College of Agriculture, and the institution of a course at the University.

Kiawa (algaroba or mesquite) is the principal honey source. The honey is apt to contain too much moisture and sour easily but it is quick to granulate. Dr. Eckert sees a good future for beekeeping in the Islands both for honey and beeswax production and for pollination.

Honey Bee Digestive Tract Changes . . .

T. M. Dobrovsky, while at Cornell University studying for his doctor's degree did some fine, minute work on anatomy studies. These are now appearing as Memoir No. 301 of the Cornell University Experiment Station under the title of "Postembryonic Changes in the Digestive Tract of the Worker Honey Bee," a 60-page booklet with 12 plates of original drawings by the author.

To the layman the subject is very heavy reading. But it is apparent that Mr. Dobrovsky did a splendid job. Some of his conclusions are that the changes in the digestive tract take place in the larval as well as the pupal stages and that both the larval midgut and Malpighian tubes empty but once.

For closer study of the paper probably copies may be obtained by addressing the Experiment Station at Cornell.

Detection of Incipient Granulation in Extracted Honey

by Jonathan W. White, Jr. and Jeanne Maher

Eastern Regional Research Laboratory 1
Philadelphia 18, Pennsylvania

ONE of the more vexing problems in honey processing is the undesired granulation of extracted honey. A great deal of research has been done to eliminate or at least delay this crystallization. The literature on honey abounds with procedures recommended to accomplish this, but it seems proper to say that none is entirely satisfactory. It is not the purpose of this article to review or discuss these methods, but rather to describe a simple device which may be used by the honey producer or packer to detect early granulation in his product so that appropriate treatment may be given.

Honey is supersaturated with respect to one of its sugar components, dextrose. Like all supersaturated solutions, it is therefore unstable and will tend to attain a stable condition. For most honeys (those with relatively low levulose-dextrose ratios) this is reached when a considerable proportion of the dextrose has crystallized as dextrose hydrate. This granulation may be started by several conditions and is certainly hastened by the presence of dextrose hydrate crystals in the honey. These may result from accidental introduction into the honey or by growth from so-called "primary crystals."² Other things being equal, a honey which is free from visible dextrose crystals will remain liquid longer than one which has been "seeded." The most common method of eliminating such crystals is by a heat treatment of the honey. In order to provide margins of safety, rather severe heating processes have been recommended for this purpose. The actual amount of heating necessary to destroy dextrose hydrate crystals in honey depends, among other factors, on the quantity and size of the crystals; but since there has been no simple means of determining when all crystals have been eliminated, it is possible that considerable overheating may be done, with consequent damage to flavor and color.

In laboratory studies of crystals with the microscope, they are examined with polarized light. Dextrose hydrate crystals are visible under these conditions as bright objects against a black background, which makes them much more easily seen in honey than with ordinary light. This offers a convenient and sensitive means of detecting crystals and has been used in the laboratory by some investigators^{2,3} studying crystallization in honey. It is obvious that the microscope is not an essential part of such apparatus but that crystals could also be detected using polarizing units and the unaided eye, except that the minimum size of crystal that could be detected is much larger.

Until a few years ago, polarized light was a laboratory tool only. It is now used in many ways outside the laboratory, because a simple, inexpensive way to produce polarized light is available.⁴ The material sold under the name "Polaroid"⁵ is used in a variety of ways to put polarized light to work in the everyday world such as in sunglasses, camera filters, and other optical equipment.

We have noted that simply by observing a sample of honey between two pieces of such polarizing material, suitably positioned, extremely small amounts of fine crystals can be detected. For example, to a thoroughly heated and cooled honey, portions of finely-crystallized (so-called Dyce-processed) honey were added. These were thoroughly mixed and examined. A sample to which had been added 0.004 per cent of this crystallized honey appeared free of crystals to the naked eye, but the crystals could easily be seen with the polarizing unit. In fact, a single crystal in a jar of honey could be easily detected if large enough to be visible to the eye.

There are many ways that an inexpensive unit could be made for this purpose. The drawing in Figure 1 shows the essentials of such device. All that is required are a light

source suitably shaded, and the two light-polarizing units, properly adjusted for minimum light transmission (greatest darkness), all mounted on a frame. Figure 2 illustrates the device in use.

As shown in Figure 1 the Polaroid⁶ is sandwiched between a piece of clear glass and a piece of ground or opal glass, which must be on the side nearest the light source. The ground glass serves to diffuse the light. The second Polaroid, sandwiched between two pieces of clear glass, is mounted a convenient distance from the first. The edges of the "sandwich" are bound with adhesive tape. In assembling the glass, care must be taken to avoid excessive dust on the inside surfaces, since it will be visible when the unit is in use. To reduce possible damage to the Polaroid film it might be advisable to interpose a piece of heat-absorbing glass between the light bulb and the first Polaroid.

For examination, the container of honey is placed between the two sheets of Polaroid and the light turned on. Honey may be in nearly any type of glass container, but must be fairly transparent. If the honey is too dark in color a piece of glass may be dipped in it and examined in the instrument. Honey in retail glass containers may be examined routinely before labelling. Figure 3 shows a sample of honey as viewed in the device. The light spots are crystals. In this particular sample, no crystals could be seen by ordinary visual examination. Other materials in honey are also visible in this device but experience makes it easy to distinguish them from dextrose crystals. The crystals are regular, flat platelets or needlelike objects, while dust particles which may be present are threadlike in appearance. Other materials which may include pollen grains and wax particles appear as tiny points of light, too small for their shape to be discerned.

The absence of crystals visible in this apparatus is of course not a

guarantee that the honey will not eventually granulate since microscopically small crystals can bring about crystallization, and other factors enter, but elimination of visible crystals should be of considerable value in this regard. Honey showing crystals when observed by polarized light should be reprocessed to avoid early granulation. It is not claimed

that there is anything especially new in this application of polarized light, but in bringing it to the attention of the honey industry it is hoped that it might be of benefit to them.

1. One of the laboratories of the Bureau of Agricultural and Industrial Chemistry, Agricultural and Research Administration, U. S. Department of Agriculture.

2. Gubin, A. as quoted in (3).

3. De Boer, H. W.: CRYSTALLIZATION OF HONEY AND THE HEATING OF CRYSTALLIZED HONEY. Chem. Weekblad 28:682-686, 1931; also in The Bee World (London) 12, No. 2, pp. 14-18 (1932).

4. The Polaroid Corp., 718 Main St., Cambridge, Mass.

5. The use of trade names in no way constitutes endorsement by the U. S. Department of Agriculture of this product over any similar product not named.

6. "Polaroid J-Film Squares, 6" x 6".

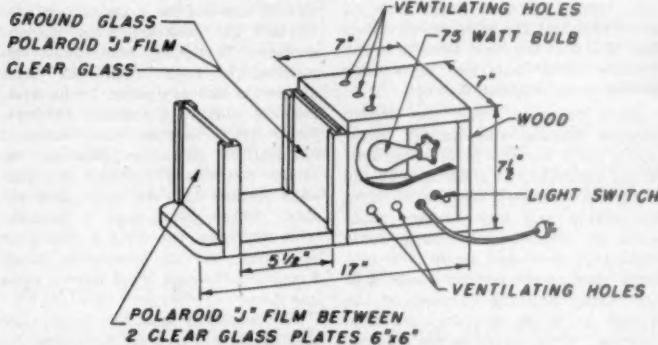


Figure 1: Drawing of Honey Crystal Detection Device, Showing Dimensions.

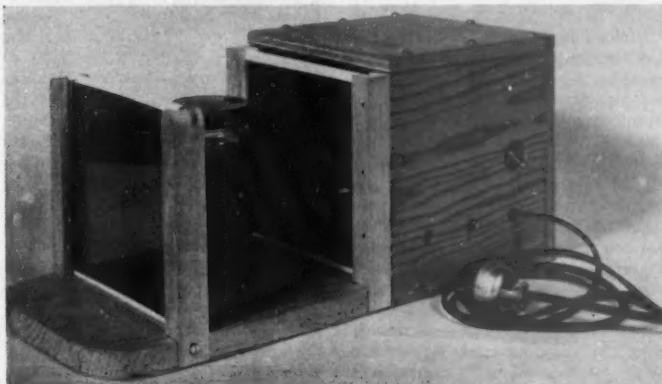


Figure 2: Honey Crystal Detection Device Showing Position of Sample.



Figure 3: Appearance of Honey Sample When Viewed by Polarized Light. The White Specks are Dextrose Crystals Which Could not be Seen by Ordinary Light.

(U.S.D.A. photos by M. C. Audsley)

"Virus X" . . .

Louis Bromfield, famous author and lecturer, was the principal speaker at the Pollination Conference in Ardmore. He discounts the effectiveness of insecticides on crops for the control of obnoxious insects. He contends that the insecticides not only fail to eliminate the pests, but that their continued use might eventually destroy the human race.

The mysterious "Virus X" is nothing more, he thinks, than the effect of DDT which has been absorbed by individuals, undermining their

health.

In support of this he cited the case of a man who had drunk milk from cows that were sprayed with DDT for flies, and had eaten vegetables from a garden that had been sprayed with DDT for bugs and worms. His illness was pronounced "Virus X" by the physician who later discovered that DDT was stored in the fatty tissues of his patient. So seriously was he affected that the doctor refused to predict whether he would ever be well again, as there is no known method of ridding the

system of this poison.

Bromfield further asserted that arsenical poisons destroy the fertility of the soil and several crops are so affected by them that they will yield less each year as long as they are used. A number of states have now passed laws prohibiting their use.

Apiary Board Bulletin,
Little Rock, Arkansas,
April, 1951.

(One cotton grower in Arkansas reported at an Arkansas meeting that the continued poisoning effect of arsenicals on cotton soil had made it impossible for him to grow rice as a rotation crop with cotton. Ed.)

Problems are many and interesting in -

Beekeeping in Israel

by Robert Blum

FOR many decades, since we have had a regular meteorological service in this country, no one remembers having seen all the country covered with snow for several days; the mountains, the plains, and even the valleys. Only very seldom in winter can we see on the hills of Judea and Galilee some snow, a very thin cover, for a short time.

The strong snowfall of last winter can only remind us of the thousands-of-years-old legend, according to which an inquisitive man in Jerusalem listened on the roof through the chimney to the clever words of a wise man until he was entirely covered with snow and frozen.

More tragic for the vegetation than for the little bee was this heavy, unexpected snowfall. Round the sea of Tiberias, the most fertile part of Israel well known by the Holy Scripts, where I am writing these lines, thousands of acres of bananas and tomatoes were frozen, and branches of eucalyptus trees, which haven't the habit of carrying snow, were broken under the heavy white load.

Almost all subtropical plants, which had been brought and planted in this country in the last years, suffered very much from the frost. They recovered slowly and although we had very warm spring weather, only the strong branches started to sprout. Although the orange groves

and fruits suffered very little, a great many of the trees didn't bloom and this was the first time in many decades that apiaries in orange groves were without a crop.

More resistant than the strong banana bushes and mighty eucalyptus trees was our little honey bee! In my outapiary at Hadera near the historical Caesarea, the storm lifted the covers and inner covers from some 20 colonies and during some eight days snow and storm blew into them—but except for the stopping of egg laying and the forming of the cluster, no harm was done to these colonies. Now, after some months, they occupy three stories.

I suppose that if Demuth had repeated with these colonies the industrious experiments he carried out over thirty years ago, he might have come to the conclusion that the local colonies clustered at a lower temperature than his experimental colonies did.

But the local bee isn't only resistant to cold weather; she also shows her special hardness against the Oriental hornets (*Vespa orientalis* L.) better than any other race. (See Picture I—Head of the hornet.) In previous years, before we were fighting against this dangerous enemy of bees with traps and different insecticides, in some districts whole apiaries were destroyed by hornets. Now we are starting to introduce a trap, an invention of mine, using warmed honey as bait. (Picture II.) Last year I could see in some apiaries that all Italian colonies, but none of the local bees, became victims of the hornets. For this reason I would recommend to Mr. D. Maurus Masse, Indo-China (see American Bee Journal, No. 1, 1950, page 17) to try to introduce our local bee against our common enemy. My advice, to introduce our local *Apis mellifica* into Indo-China may not appear to be very honest, as we ourselves are going to replace our local bee with the Italian bee. Therefore I am giving below the main reasons for it:

The local bee isn't only a fine

fighter against the hornets, but also against the beekeeper, her aggressiveness becoming sometimes impossible to bear. Some 25 years ago, on a hot day when I was moving my apiary, I reached the new place after sunrise, and when I opened the entrances hundreds of stings penetrated through my thin shoe leather and my socks into my skin. Three years ago I brought with me from the USA a fine pair of gloves, but the numerous stings I received through them were a little less fine.

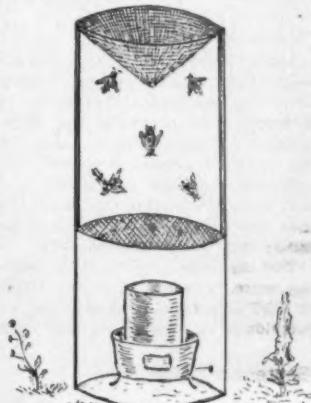
The local bee lays too many eggs and in some years its swarming fever is too strong. Often, when no queen excluder is used, heavy honeycombs are turned into brood combs. Compared with the Italian bee, our local bee is smaller in size and so is her honeysuck, so that she has to make more flights than the Italian bee in order to collect the same quantity of nectar. All these are reasons why the crop of the Italian bee (of good strain) is 50 per cent higher than that of the local bee.

When requeening local bees with Italian queens we find certain difficulties which may also interest the American beekeeper. In most parts of the country the local bee lays all year round, not always a disadvantage, whereas the Italian bee often stops laying completely although the climate here is much warmer

Fig. I. Head of the hornet.



Fig. II. The author's hornet trap.



than in its country of origin. This fact sometimes makes the introduction of an Italian queen difficult, as the local bees don't agree with her behavior in egg laying.

Last autumn I received some Italian queens from the USA which arrived in the best condition. I introduced them carefully into very small colonies consisting of young bees only. After a few days I found that they had been accepted. In the center of the combs the bees had very properly cleaned many cells and made them ready for the "Italian eggs." After another few days I wanted to see the new brood, but couldn't find any. I found only one queen left with a worker bee on her back pulling off her wings. Only later I found the explanation. In autumn, the Italian queens generally

cease laying, the local worker bees don't agree with this and therefore kill the queen.

It may be that the Italian bees often change their queens because of the change in the climate. It often happens that a young Italian queen just coming out of the cell isn't accepted by the local bees. Also the finer smell of the Italian bees may be the cause of more robber attacks than the local bees can sustain.

We are going to Italianize our hives 100 per cent despite these disadvantages. The deciding reasons are: Larger crops and the gentleness of the Italian bees.

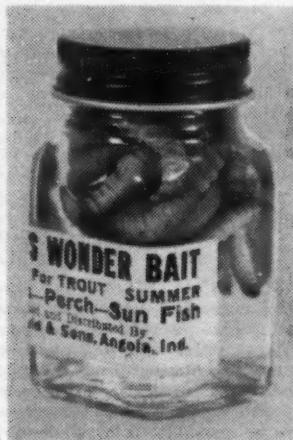
We well know that animals and also the bees do best in their country of origin, and that displacing them into far countries with different cli-

mates is always connected with some dangers. One of our best beekeepers is a supporter of this theory. For years he has been breeding from the local bees a nonstinging, gentle bee.

One day I paid him a visit, to learn personally the result of his important work. When we were going to see the bees he offered me a veil which I didn't accept saying to him politely, "But your bees don't sting." This flattering remark forced him to go without a veil also. When I said this I had had in mind the old Latin saying, "Hic Rhodos, hic salta." (Here is Rhodos, jump here.) Needless to say what happened when he opened the hive. I doubt whether he ever got more stings in his face than that time.

Tel-Aviv, Israel

Worms for Bait . . .



We have oftentimes heard of the use of large worker or drone larvae for fish bait. In fact Dr. H. Babcock of South Carolina has written several articles in the sporting magazines about the efficacy of drone larvae for fishing.

But here is a new fish worm, though unfortunately not new to the beekeeping profession. Wax worms from the greater wax moth are being raised and packed commercially for fishermen by Gould & Sons of Angola, Indiana. Fine for perch and sunfish, packed so as to have no odor and keep indefinitely, they are also good for fishing through the ice.

Our American Beekeeping Federation

John Holzberlein in Colorado lets bees swarm and takes a day off to write letters. Newman I. Lyle of Iowa lets the smoker go out while he thinks out another way beekeepers can cooperate to their own good.

Elmer Carroll laboriously handles the job of State Secretary and a honey advertising program from his Michigan wheel chair. N. C. Jensen, Mississippian, lets some queen cells hatch out and destroy a valuable bunch of other cells while he attends to Federation affairs.

Two hundred and twenty-five pound E. H. Ade of Nebraska spends his own time and honey raising money for the benefit of all beekeepers. One hundred and ten pound Ray Fischer of Arkansas neglects his own honey packing business while he ponders how to improve the honey market for everybody.

Glenn Jones gives a speech in Oklahoma. Roy Grout takes another trip to Washington on his own time.

Seven kids in a one-room school in New Mexico take out the five-pound tin of honey for lunch. The little blonde Belgian girl has American honey for breakfast. It's all the result of Federation work.

Most of the work and thought that keeps the Federation going is done free by many people. Our dues just hold the core together so to make the whole cooperate effectively. Our dues are less effective than they might be because too many beekeepers skip paying them too often. Don't skip yours. It might hurt to pay them this year — poor crops and all. It would hurt the pocketbook a lot more to lose the benefits of the Federation.

Reprinted from the June issue of the News Letter of the Colorado Beekeepers Association, and the Federation News Letter, June-July, 1951.

The Use of Honey and Cappings in Sinusitis

by D. C. Jarvis, M. D.

THE sinuses are an important part of the breathing apparatus. They are connected to the nasal passageways and help to filter, humidify, and warm the air we breathe. Being hollow spaces in bone they also affect the voice and lessen the weight of the skull.

There are eight sinuses, equally divided on both sides of the head. The maxillaries are located in the cheeks alongside the nasal cavities. The ethmoids and sphenoids are behind the nose, near the base of the brain. The remaining two are the frontals; they are in the forehead above the eyes. They do not communicate directly with the nasal cavities as do the other sinuses. They drain first to the ethmoids and from there to the nose. This makes them more difficult to treat because two rather than one set of sinuses must be taken into consideration.

The membranes lining these spaces are about one twenty-fifth of an inch thick and are covered with a mat of fine microscopic cilia, or hairs. In this respect they resemble the inside of the nose, which has a similar lining. The hairs move back and forth like wheat in the wind and this movement propels mucus from the cavity. It is a self-cleansing arrangement which is most efficient.

This mechanism has one weakness however. After repeated or chronic infections the cilia are destroyed, which in turn affects drainage of mucus from these structures. This explains why individuals with chronic sinuses have so much trouble. Prompt care of acute attacks often prevents permanent changes in the lining membranes which encourage a chronic condition.

When inflammation of one or more of the sinuses appears it generally develops on an alkaline urine reaction background. The urine reaction when taken on rising in the

morning and again before the evening meal with Squibbs Nitrazine Paper purchased at the drug store is alkaline. This alkaline reaction turns the Squibbs Nitrazine Paper blue in color. When the normal acid reaction of the urine is present the Squibbs Nitrazine Paper turns yellow in color. As long as the sinus trouble appears on an alkaline urine reaction background one susceptible to sinusitis should become familiar with the factors that produce an alkaline urine reaction in the majority of individuals. These are as follows.

1. Certain foods such as all-wheat foods whether made from whole wheat or white flour, white sugar, milk as a beverage, muscle meats such as beef, lamb and pork, citrus fruits and citrus fruit juices.
2. A drop in the weather temperature.
3. Prolonged physical work.
4. Prolonged mental work.
5. Emotional upsets.
6. Certain medicines such as sodium bicarbonate.

One should control as far as possible these factors that produce an alkaline urine reaction.

One should also check the amount of protein food taken each day. Protein food includes milk, eggs, meat, cheese, nuts, cereals, peas and beans. Some protein food is necessary to repair the daily tissue wear and tear but there is no provision in the body to store protein as there is to store fat and sugar, consequently the body must get rid of the protein it cannot use in the process of tissue repair. This excess of protein is eliminated by the breathing tract and during this elimination we may observe the appearance of sinusitis. One subject to sinus trouble should become interested in the daily intake of protein. If nuts and baked beans agree with you then these may represent the source of protein on some weak days. If fish and other seafood agrees then these may represent the source of protein on other weak days. In

time with the aid of Squibbs Nitrazine Paper one learns the kind of protein food that is least inclined to shift the urine reaction to the unwanted alkaline reaction.

Having become familiar with the factors that produce an alkaline urine reaction which represents the background on which sinus inflammation develops and with the importance of watching the daily intake of protein foods and increasing the daily intake of leafy vegetables, root vegetables and fruits one next turns attention to the manufacture of antibiotics in the human body to protect one from disease. We and the animals manufacture some of the vitamins and it is perfectly feasible to assume that we also manufacture some of the antibiotics to protect us from sickness, if the body is given the material with which to manufacture them. If this were not true man and animals could not have survived through all the years that have passed.

The human body apparently manufactures its own antibiotics from sticky material used in Nature to protect buds of plants and trees and the bark of trees from disease. In medicine we refer to such preparations as penicillin as an antibiotic. The ants seek out the sticky resinous substance on peony buds. The honey bee seeks out the sticky balsam on the bark of the pine and spruce trees here in Vermont. Dairy cows are very fond of sticky things. Goats are also. In Vermont folk medicine in the fall when the pine tree produces buds, the native Vermonter gathers short twigs bearing pine tree buds and a few pine needles. These pine tree buds are covered with a sticky resinous material. These short little twigs having buds and a few pine needles are placed in a dish. They are covered with water and allowed to boil slowly on the back of the stove for three days. During this three-day period the water turns brown. At

Idaho Leads The Way in Honey Advertising Help

The Idaho State Honey Advertising Commission has allocated from their funds the sum of \$2,000 to the American Honey Institute for advertising and publicizing honey. A similar amount has been allocated to the American Beekeeping Federation according to news received by the Institute from Elmer M. Nelson, a member of the commission. The funds are their contribution for 1951. Mr. Carl F. Feeler is president of the commission. Other members besides Mr. Nelson and Mr. Feeler are D. A. Stubblefield, Commissioner of Agriculture, Charles A. Williams, and H. N. Mundell.

The Idaho Honey Industry Act became

operative on May 4, 1949. The act created a commission including three beekeepers and the State Commissioner of Agriculture to administer and allocate the funds secured by a tax of five cents a colony on all bees within the state, collected annually in the same manner as other taxes.

More power to Idaho for leading towards an ideal way to get a working fund for not only publicizing honey but for any other good work that will benefit Idaho beekeepers. May their action be the means of inducing beekeepers in other states to follow with similar efforts and resultant action.

the end of three days the contents of the dish are poured into a strainer. To this strained liquid enough honey is added to thicken the liquid. This mixture is taken whenever a cold or cough develops. The dose is one teaspoonful. Also the balsam of the fir tree is gathered. Blisters on the fir tree bark are punctured with a knife and from a punctured blister a very sticky yellow fluid flows which is as thick as heavy molasses. This balsam is kept in liquid form in a bottle. The dose of this fir tree balsam ranges from a few drops to one teaspoonful generally taken with sugar. Both the pine tree honey mixture and the balsam from the fir tree are used to treat any sickness of the breathing tract.

We human individuals turn to honey as a source of sticky material with which to manufacture in our body the natural antibiotics needed to preserve our health and protect us from disease. By taking honey each day we enable the body to perform one of its functions, namely the manufacture of natural antibiotics. The total dose of honey each day for the purpose of manufacturing natural antibiotics is six teaspoonfuls. More may be taken if desired. This amount may be divided between the day's meals or the six teaspoonfuls may be taken at one meal. This daily dose of six teaspoonfuls of honey is not one worked out by me but one worked out by Vermont folk medicine dur-

ing the passing years. This honey may be used to sweeten food or it may be taken direct from the spoon. The taking of honey for this purpose becomes a daily routine procedure.

A definite treatment when a sinus attack appears is as follows.

1. Shift the morning and before evening meal urine reaction back to the normal acid side with cranberry juice. Take from one-third of a glass to a whole glass of cranberry juice at 10:00 A. M., 3:00 P. M., and 8:00 P. M. The object is to take the cranberry juice between meals. Cranberry juice contains four different acids and shifts the urine reaction the quickest of anything I have tried with patients. A daily schedule of cranberry juice such as the one advised should be worked out to fit in with your daily schedule.

2. At each meal add two teaspoonsfuls of apple cider vinegar to a glass of water and sip this during the meal so that when the meal is finished the contents of the glass will have been taken. Test your urine reaction with Squibb's Nitrazine Paper each morning and before the evening meal in order to be sure to keep it the normal acid reaction which turns the Squibb's Nitrazine Paper yellow.

3. At each meal take two teaspoonsfuls of honey. If you should develop an undesirable laxative effect from the honey reduce the amount. If you are constipated in-

crease the amount of honey.

4. Obtain from a beekeeper some honeycomb cell cappings. These cappings represent the top of each honeycomb cell. Take one chew which equals a chew of gum every hour for from four to six chews. Chew each chew for fifteen minutes and then spit out what remains in your mouth. If the sinus attack is acute these four to six chews of honeycomb cell cappings should bring about a disappearance of the symptoms in one-half day to one day's time. The nose will open up and the pain will disappear. Body energy will return and the sinuses will return to normal. One chew of honeycomb cell cappings is taken once a day for a week so as to prevent any immediate recurrence of the sinus trouble. If you care to take one chew of honeycomb cell cappings once a day from the time school and college open in the fall to the time they close in June and also take six teaspoonfuls of honey each day and in addition control your daily intake of protein food it should be possible for your body to manufacture enough antibiotic material so that it will be very difficult for you to have a repetition of your sinus attack and to have an attack of influenza or a head cold. There is something in honeycomb cell cappings that protects the breathing tract from sickness.

Vermont

Breeding Improved Honey Bees

III. Sex Determination and Bee Breeding

by William C. Roberts and Otto Mackensen

U.S.D.A., Agr. Res. Adm., Bureau of Entomology and Plant Quarantine

EVERY beekeeper knows that the economically productive colony has a large population of worker bees. In order to provide this force the queen must lay a large number of fertile eggs, and they must hatch and be nurtured to develop into adults.

Many years ago Dzierzon discovered that male bees develop from unfertilized eggs. Drones have a mother but no father. This is known as parthenogenesis. It is not peculiar to bees, for many other animals have this method of reproduction. The female bees, workers and queens, develop from fertilized eggs. They have both father and mother. From each parent they receive 16 chromosomes and so have 16 pairs of chromosomes. The drone, who receives all his inheritance from his mother, has only 16 single chromosomes. Having paired chromosomes, the workers and queens are called diploid individuals. Since the chromosomes of drones are not paired, they are called haploid individuals.

Recent work indicates that the fundamental determiner of sex in bees is not the number of chromosomes or whether or not the egg is fertilized. Sex is determined by the action of certain genes at one locus on one pair of chromosomes. In the wasp *Habrobracon*, a relative of the honey bee, the females are diploid and the males are normally haploid, but under certain genetic conditions diploid males have been produced. No diploid males have been discovered in honey bees, but there is experimental evidence that sex determination in honey bees is similar to that in *Habrobracon*.

The position of a gene on a chromosome is called a locus. On one of the chromosomes there is a locus that is called the X, or sex-determining, locus. At this locus in honey bees there is a series of multiple allelic genes—instead of only two alleles, such as capital W and small w, which are alleles to each other, there are many alleles. We will call this the X locus and the alleles X_a,

X_b, X_c, etc. To simplify matters we can drop the X and use only the letters a, b, c, etc., remembering always that these are the X alleles.

According to the theory of sex determination in bees, females develop from fertilized eggs that are heterozygous at the X locus. These eggs have two unlike alleles, such as ac, ad, bc, bd, etc. Any fertilized egg that happens to be homozygous at this locus would be a drone if it developed. However, it does not develop but dies instead. Thus all fertilized eggs that are homozygous—that is, having two sex alleles alike, such as aa, bb, cc, etc.—are lethal and do not hatch. Drones develop from unfertilized eggs and are haploid, having only one of these alleles—a or b or c or d, etc.

If a queen with sex alleles ab is mated to a drone having sex allele c, the fertilized eggs from this queen will be ac and bc. Since these eggs are heterozygous, their hatchability is near 100 per cent. An ab queen mated to an a or b drone has fertilized eggs that are ab and aa. Since the aa eggs do not hatch, the viability of fertilized eggs from this queen will be only 50 per cent.

It can thus be seen that egg hatchability and the brood quality of a queen are determined by the sex alleles of the queen and the drone or drones that mate with this queen. To illustrate this point let us set up a breeding example. A beekeeper chooses a breeder queen from which he will raise a number of daughter queens. This queen has high-quality brood because she mated with a drone or drones whose sex alleles were different from hers. Since the queen is diploid and heterozygous for the sex-determining locus, we will assume that she is ab. Having good-quality brood, we know that she mated with a drone or drones that were not a or b. Let us assume that she mated with two drones, one c and one d. Fertilized eggs from this queen will be ac, ad, bc, and bd. Notice that all are heterozygous for the X locus, an indication of high hatch-

ability and good-quality brood. Let us further assume that these queen daughters ac, ad, bc, and bd are allowed to mate with drones from another unrelated queen, which we will designate as yz, and that each queen mates with two drones—that is, drones y and z, y and y, or z and z. Their fertilized eggs will be either ay, cy, by, and dy or az, cz, bz, and dz. Consequently the brood quality will be good because the queens and drones have different sex alleles.

Let us assume that the next year the beekeeper raises queen daughters from one of these queens and drones from one of the other queens and allows them to mate together. These are called matings of first cousins. The sex alleles of the daughters of ac x yz will be az, cz, ay, and cy in equal proportions, if the queen is ac and mated to one y and one z drone and received equal amounts of sperm from each.

Assume that the queen selected to produce the drones for mating with these virgins had sex alleles ad and that she was mated to z and y drones. Since drones develop from unfertilized eggs, all drones from an ad queen will be either a or d. If a large number of drones are produced, it is likely that half of them will be a and the other half d. If each virgin—az, cz, ay, or cy—mates with two drones, matings will be to drones a and d, or a and a, or d and d.

The queen az that mated with one a and one d drone will produce the following types of fertilized eggs with equal frequency: aa, ad, za, and zd. Since ad, za, and zd are heterozygous, they hatch, but the homozygous aa fertilized egg dies. Thus one fourth of the fertilized eggs produced by this queen fail to develop. Consequently she has low-quality brood and does not develop a colony with a large population of worker bees. This queen would have produced high-quality brood and a large colony if she had mated with two d drones instead of one a and one d, but only 50 per cent of her eggs

would have hatched if she had mated with two α drones.

It is quite evident that the productivity of a colony or of a queen depends to a great extent on the sex alleles represented in the queen and in the drones that mated with the queen. Three sister queens can be identical genetically, and yet if each queen is mated to two drones of a group of brother drones, their egg hatchability can be 50, 75, or 100 per cent, depending upon the sex alleles in these drones. Other things being equal, if only 50 per cent of the fertilized eggs of a queen hatch, the colony is very unproductive. On the other hand, if the eggs are 100 per cent hatchable, very populous colonies will result. If these queens should mate only once, there would be only 50 per cent and 100 per cent hatchability of fertilized eggs from the several queens, with no 75 per cent hatchability matings.

What then can be expected of a breed-improvement program attempted by a queen breeder? Let us assume that from his own or selected stocks he chooses three mated (tested) queens as the source of all future breeding stock. He will try to improve his stock by breeding the best to the best. He will control matings by isolation so that they will be between progenies of these queens. It is assumed that each of these queens has different sex alleles. If each queen is mated to two drones and all these drones have sex alleles different from any of those in the three selected queens, there will be four different sex alleles in the progeny of each breeder, and a total of 12 alleles for all breeders. These sex alleles are given the following distribution:

Queen No.	Queen	Drones Mated to Queens	Daughter Queens
1	ab	c and d	ac, bc, ad, bd,
2	ef	g and h	eg, eh, fg, fh,
3	jk	l and m	jl, jm, kl, km

Each of these queens with her offspring is a family. From each family the queen breeder may produce drones and queens the first year and allow the matings to occur at random or he may produce only drones from one or two families and queens from the other one or two families. Furthermore, he may segregate the drones and thus divide his population into three mating groups. Now it can be shown that the relationship of matings for the third year is essentially the same by any of these methods. In the first two years the breeder has an opportunity to select

between three groups of sister queens and the three groups of brother drones produced by these queens.

If the breeder has a separate yard for drones of each family and allows queens from one of the other families to mate at this isolated location, he can avoid poor viability of brood due to the mating of individuals having sex alleles in common for the first two years only. This can be illustrated as follows: First-year daughters of queen 1 mate with drones of queen 2; second-year queens (1 \times 2) mate with drones from family 3. The third-year queens (1 \times 2) \times 3 must mate to drones produced by (2 \times 3), (1 \times 3), or (1 \times 2) queens. A queen (1 \times 2) \times 3 will have one sex allele from the

3 family and the other from either the 1 or 2 family.

Let us assume that a daughter queen has one allele from family 1 and one allele from family 3. She is designated as having sex alleles α . She could have any one of several combinations, but she must have one allele of the four possessed by family 3—that is, j, k, l, or m. The other of her sex alleles must come from family 1 or 2 and could be any one of the eight alleles originally present in these lines.

The drones with which this queen mates are sons of (2 \times 3) queens. If a large number of (2 \times 3) queens produce these drones, then the e, f, g, h, j, k, l, and m drones will occur with equal frequency. If this ak

(Please turn to next page)

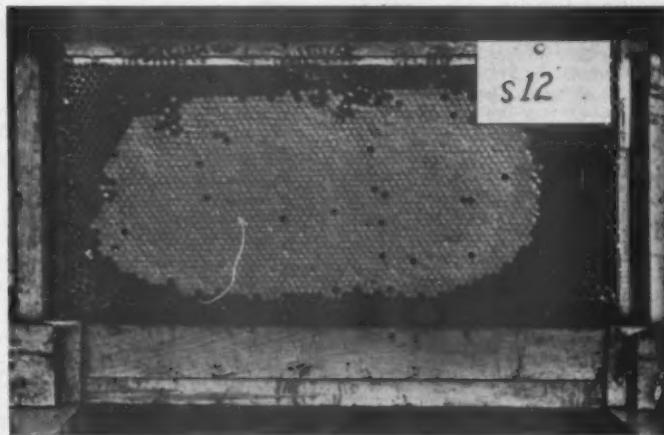


Figure 1. Brood of high viability — 96 per cent. Queen and drones carried unlike alleles, for example, ab queen mated to c and d drones.

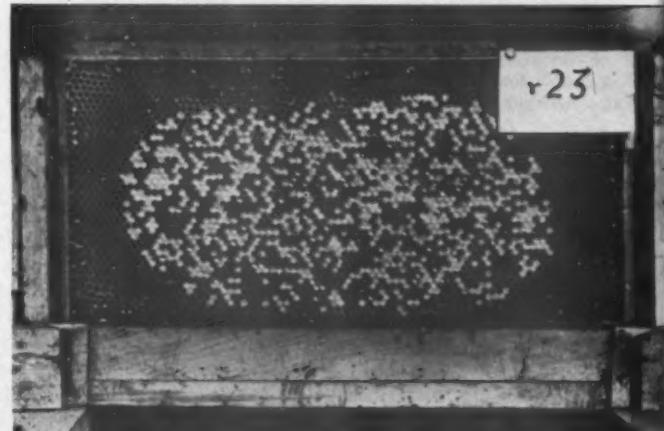


Figure 2. Brood of low viability — 48 per cent. Queen and drones carried same sex alleles, for example, cd queen mated to e and f drones.

queen mates with only one drone and that drone happens to be *k*, then the eggs of this queen will be only 50 per cent hatchable, since the fertilized eggs will be *ak* and *kk* in equal proportions, and all *kk* eggs will fail to hatch. However, should she mate with a single drone having the sex allele *h*, her eggs would then be 100 per cent hatchable.

If a large number of queens ((1x2)x3) mate with (2x3) drones, half of them with only one drone and the other half with two drones, then 11.3 per cent of the queens will have 50 per cent viable brood, 14.8 per cent of them will have 75 per cent viable brood, and 73.8 per cent will have 100 per cent viable brood.

If the queen producer has maintained three separate groups, each group will be similar to the above, for ((2x3)x1) daughters will be mated to drones produced by (3x1) queens and ((3x1)x2) daughters will mate at the yard that produces (1x2) drones. The ratio in each yard will average the same for brood viability.

If these stocks are maintained separately or united into one breeding population, the viabilities will be similar in all yards after the second year. Only 12 alleles were present originally in the stocks, and as long as these are present in equal ratios, the brood viabilities of mated queens will approximate the figures given above (also see Table I). These percentages are based on the assumption that half of all queens mate once and the other half mate twice. If the proportion differs, the percentage of 50 per cent viable matings will vary accordingly, but the percentage that will give 100 per cent viable brood will not change.

It is thus evident that one fourth of all mated queens will produce brood of low viability (50 or 75 per cent egg hatchability) after inbreeding.

ing begins, if attempts are made to improve a line by breeding within a closed population started from three selected breeder queens. During the first two seasons there is no inbreeding, for the three lines are being crossed only with each other.

The queen breeder has an opportunity to select for desired type or color, but cannot increase the percentage of matings with high brood viability because he does not know what alleles are carried by each queen.

It can be seen from Table I that the percentage of matings that give high-viability brood increases with the number of sex alleles in the breeding population. However, even with 40 sex alleles in a breeding population, approximately 5 per cent of all single-mated queens and 10 per cent of all double-mated queens will produce 50 or 75 per cent of viable brood. The only sure way to have high-viability brood from all queens is to mate queens of one sex-allele combination with drones originating from queens having other sex alleles.

Insofar as other characteristics of economic importance are concerned, little progress can be made after the first few generations by selection within a closed population. Homozygosis, or fixation of genetic characteristics, will increase slightly each generation in the first few generations after inbreeding is begun. The strain of bees developed at the end of 10 to 15 years of breeding by this method will still be variable. However, selections will have reduced some of the variability for visible traits such as color, and the stock will appear more nearly uniform than at the beginning of the breeding program. Progress may also have been made in selecting for temper and other highly heritable characteristics. However, it is very

doubtful whether significant progress can be expected in characteristics such as vigor or honey production for, like most economically important characteristics, they have low heritability. Characteristics that are highly heritable, such as color, are varied only slightly by environmental factors. Low-heritability characteristics, such as egg production, are varied considerably by the environment.

It should be pointed out that the small real gain by this method of breeding is made at the expense of brood viability, owing to matings of relatives having sex alleles in common. If the breeder starts with three selected queens and mates their offspring together, one fourth of all matings will result in brood of poor viability. This is a high price to pay for commercial experiments in bee breeding.

The bee breeder is thus unable to establish a superior breed of bees by using the methods that have been successful with cattle and hogs. Breeding of the best to the best and continuing with their descendants results in poor-quality brood in a large number of matings. The animal breeder fixed his breeds by inbreeding within closed populations. The bee breeder using this method fixes some characteristics, but cannot fix the breed for the important characteristic of high egg hatchability. This characteristic is necessary for quality brood and thus populous colonies.

The next article will tell how the bee breeder can insure high-quality brood in all colonies by adopting a breeding plan based on controlled hybrids.

Beekeeping in France . . .

In 1850 France had 5 million colonies of bees; in 1890, 2½ million and in 1929 a million two hundred thousand. By 1939 the number had dropped to 600 thousand and in 1950 what with the new insecticides may have dropped to 300 thousand. And yet France enjoys a marvelous climate and an abundant variety of flora."

L'Apiculteur

Bees at Oberammergau . . .

"Bee Craft" in reporting on the Passion Play at Oberammergau interviewed Herr Zunlerer who takes the part of Herod in the Passion Play. He keeps bees in Oberammergau. Most of his colonies are in bee houses, with hives two rows high, as is the custom in Germanic countries to a great extent.

Table 1.
EXPECTED BROOD VIABILITY WITH RANDOM MATINGS IN POPULATIONS HAVING EQUAL FREQUENCIES OF VARIOUS NUMBERS OF SEX ALLELES

Number of Sex Alleles	Single-Drone Matings		Two-Drone Matings			Matings Half Single and Half with Two Drones		
	50%	100%	50%	75%	100%	50%	75%	100%
2	100	0	100	0	0	100	0	0
4	50	50	25	50	25	37.5	25	37.5
6	33.3	66.7	11.1	44.4	44.4	22.2	22.2	55.6
8	25	75	6.3	37.5	50.3	15.6	18.8	65.6
12	16.7	83.3	2.8	27.8	69.4	9.7	15.9	76.8
16	12.5	87.5	1.6	21.9	76.5	7	10.9	82.1
20	10	90	1	18	81	5.5	9	85.5
24	8.3	91.7	.7	15.3	84	4.5	7.6	87.9
28	7.1	92.9	.5	13.3	86.2	3.8	6.6	89.6
32	6.3	93.7	.4	11.7	87.9	3.3	5.9	90.8
36	5.6	94.4	.3	10.5	89.2	2.9	5.2	91.9
40	5	95	.2	9.5	90.3	2.6	4.8	92.6
n	2	n-2	(2) ²	2(2)(n-2)	(n-2) ²			
	—	—	—	—	—			
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Milk and Honey Products

Concentrated milk and honey products can now be manufactured by methods recently outlined in the technical journal "Food Technology." Appearing in the May 1951 issue is an article, "Manufacture of Concentrated Milk and Honey Products," by G. P. Walton, J. W. White, Jr., B. H. Webb, C. F. Hufnagel and A. H. Stevens of the Agricultural Research Administration, United States Department of Agriculture. Walton, before his retirement in late 1949, and White are of the Eastern Regional Research Laboratory, Philadelphia, and Webb, Hufnagel and Stevens are from the Dairy Products Research Laboratory, Bureau of Dairy Industry at Washington.

The article is the summation of several years of cooperative work between the two organizations which

was carried out in part with Research and Marketing Funds.

The publication describes methods of manufacture of three milk-honey products, honey-sweetened condensed milk, honey-evaporated milk, and dried honey and milk mixtures. These products can all be manufactured with standard dairy equipment. Physical properties and stability in storage of the products are described in detail.

A typical honey-sweetened condensed milk as described contains 72 per cent total solids, of which honey sugars comprise 40 per cent. A series of honey-evaporated milks is described in which up to 8 per cent of the solids of the finished product are honey solids. It is suggested that these two products "which are made with whole milk,

are considered especially useful in infant diets and in other special diets."

The dried honey-milk mixtures are described in detail. Two methods of manufacture are given, conventional spray drying and a mixing-tunnel drying process which does not require a spray drier. It was found that a dry, free-flowing hygroscopic powder could be made, containing up to 40 per cent honey solids and 60 per cent non-fat milk solids. Physical properties and composition of several dry honey-milks are included. Possible manufacturing uses for the dried honey-skim milk include commercial and retail baking, and as an ingredient in prepared dry mixes for baking, in modified milk powders and concentrates, in cocoa, beverage, dessert and ice-cream mixes and in confectionery.

We Need to Adopt the American Way

"No government ever financed anything that it did not get control of. You cannot separate responsibility and power. If the government hands out a dollar, with it goes implied responsibility of how it shall be spent and some influence on the life of the recipient."

According to Nebraska Bee Tidings, this statement was made by Dr. Alfred P. Haake, the well-known industrial economist.

Faced with a serious economic condition, the honey industry asked for and received price support through Congressional action. Congress granted price support to the industry because of the necessity of maintaining beekeeping for the pollination of food and seed crops. The industry in turn requested a support level which it contended would not cause beekeepers to move their honey to the government for direct benefits. It only wanted

economic stability—a floor under our honey markets. Diversion and export subsidy programs were added to this picture to move a surplus of honey created in part by government requests through 1948 for more bees for pollination purposes. But we do not deny that these programs have had some of the effects implied in the statement by Dr. Haake.

We are approaching pollination without government aid fully believing that planned pollination cannot be legislated nor would such an approach be wise. We need to do more in a marketing program to the end that the honey we produce will move orderly to market at a price which will make beekeeping profitable. We should do this for ourselves. Through pollination and an adequate marketing program we again can stand on our own feet as an industry devoid of government help. This is the American way. It is the way we should go!

ITALIAN BEES AND QUEENS

E. J. Bordelon Apiaries
MOREAUVILLE, LA. BOX 33

AMBER HONEY and Wax Wanted

Wax Worked Into Foundation
**LOWEST PRICES ON
BEE SUPPLIES**

Write for Catalog, Save up to 28%

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Northern California Italian Package Bees and Queens

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CARLOADS AND LESS THAN CARLOADS
Send samples and quote best cash price delivered to us. All grades.

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MANUFACTURERS-JOBBERS
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Modern Beekeeping
If you are taking time to read, why not read the best?
Condensed to save you time.
Illustrated to give you pleasure.
1 yr. \$1.50; 2 yrs. \$2.50; 3 yrs. \$3.25
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**HONEY PRODUCERS AND
PACKERS SUPPLIES**

Michigan Bee & Farm Supply
Box 7, 510 N. Cedar, Lansing, Michigan

Better Breakfast Month

American Honey Institute

Madison 3, Wisconsin

Always looking for a new angle, that's the progressive beekeeper. And we've got one to offer you:

September is Better Breakfast Month. Can you think of a better way to have a better breakfast than to add honey to the menu? We can't. And neither can the public, if you put the idea into their heads.

This makes a good theme for a honey display, either at a fair, or in a local store. Of course, the American Honey Institute can furnish you with posters and recipe books that dwell on the honey breakfast theme; they are yours for a nominal cost.

Do you know all the uses that honey serves at the breakfast table? Here is a refresher course:

*Use honey over waffles, French toast, pancakes, or fried cornmeal mush. If you use buckwheat flour in your pancakes, try using buckwheat honey.

*Combine equal parts of honey and butter to make honey butter. This can be stored in the ice box and used every morning.

*Pour honey over fresh pineapple for the morning fruit quota.

*Use honey when you make the morning muffins. This is especially good if you use a fresh fruit in your muffins, such as blueberries.

*Spice your morning milk with honey and cinnamon. This delicious drink will make milk a favorite at your house.

*For a special treat, serve your family a good rich honey eggnog. It's really fun to drink your morning egg instead of eating it!

*Use honey to sweeten your coffee.

*Serve a dab of honey in the middle of a grapefruit. Or for special occasions, put the grapefruit under the broiler and flavor with honey.

*Before adding milk to the breakfast cereal, stir two tablespoons of honey into the milk. It flavors the cereal as well as sweetens it.

*Or combine honey and orange juice to use on your pancakes.

Think what a window display featuring any one of these breakfast

ideas could do for your honey sales! If you provide the display material, any grocer would be glad to cooperate. For instance, you could feature honey muffins for breakfast using the following recipe:

Honey Flake Gems

1	cup sifted flour
1	teaspoon salt
3	tablespoons baking powder
1	egg
1/4	cup honey
1/2	cup milk
2	cup wheat flakes or corn flakes
4	tablespoons melted fat

Sift flour, salt, and baking powder together. Beat egg until light, add honey and milk, and stir into dry ingredients being careful not to overmix. Add slightly-cooled fat and stir just enough to mix ingredients. Carefully fold in cereal flakes. Fill greased muffin cups two-thirds full. Bake about 25 minutes in a moderate oven (350 degrees F.). Yield: 10 medium-sized muffins or 12 small muffins.

A window display could feature these muffins, shown as a part of a breakfast menu, set up in an attractive table setting. The printed recipe itself could be blown up and displayed behind the table. And of course the honey pitcher would be in great prominence. One stunt that always gets attention is to bake these muffins in tiny size, then give each customer a taste of how good honey muffins are. It is this sort of promotion that will make the demand for your honey as great, if not greater, than the supply of honey you have on hand.

This Honey Flake Gems recipe is printed in the American Honey Institute's Honey and Cereals leaflet. Buy these leaflets cheaply from the Institute, give them away to your customers. The leaflet is filled with other good honey recipes.

Now, when you are displaying your honey — and we hope you are placing it in plain view of the public — you'll need good display material. Especially for this year's honey crop, the Institute has printed two new display posters. Both of these are large, 17" by 11". Both are done in vivid yellow and brown color, with a great deal of eye-catching appeal. "Everyone Enjoys Honey" exclaims one, while picturing a tow-headed boy goggle-eyed over a slice of bread with honey on it. The other gives

this message: "Mmmm, Just Arrived, New Season's Honey. Order Today, Use Every Day."

For a single beekeeper to print such good promotional pieces would require a great outlay of money. But for the Institute to absorb this expense and offer these posters at a very small cost (ten cents apiece) is quite a deal for the beekeeper.

And for your breakfast build-up, try featuring your Creamed Honey with a liberal dose of the new Creamed Honey leaflets just printed by the Institute. These leaflets are done on yellow paper with brown printing. Besides giving a good definition of creamed honey, it also gives a complete menu using creamed honey as a focal point. Many people don't realize the potentialities of creamed honey as a cooking ingredient; this leaflet will give them a good start in the right direction.

Probably the key word in publicizing a product is "good will." For advertising your honey is nothing more than building good will for it.

But building this good will is not the simplest thing in the world to do. The American public is critical of the goods it buys; it needs to accept only those products that completely satisfy its demands. Americans can be hoaxed once, but not twice. And oddly enough, it is the repeat sales that make a good year for honey.

Good will toward a product is built up only through constant hard work. The man who boasts of a good business will tell you that good will consists of two things that the retailer must conscientiously give his customers: good faith, and a good product.

Good faith means simply that the honey seller is not trying to put something over on the customer. His advertising is truthful; he makes no false claims or exaggerations. He is selling the product in good faith, being honest in his dealings, fair in his trading.

And a good product needs no explanation. Honey is pure, must be kept pure, and made to look pure to the scrutinizing customer. Clean packaging, good methods of refining or processing, fine displays all go under this heading.

So check your tally. Do you market a good product in good faith? If so, your honey will claim the good will of the public.

BESSONET'S "GULF BREEZE" ITALIANS

We have a large stock of "GULF BREEZE" queens ready for those colonies with old queens. Do not let winter catch you unprepared, as old queens are a liability.

Prices: 1-24 80c each — 25 or more 75c each, air mailed.

BESSONET BEE COMPANY, Donaldsonville, Louisiana

CAUCASIANS UNLIMITED

Queen shipping season closes for 1951 on September 15. This has been our greatest season, more than 50% above last year. We are now making plans for greater production and improved quality in 1952. Summer prices still effective.

1 to 11 at \$1.00 each
 12 to 40 at .90 each
 50 to 99 at .80 each
 100 or more .75 each

THOS. S. DAVIS

Route 7, Box 3914

Sacramento, California

*Knight's Three-Banded Leather Colored
ITALIAN BEES AND QUEENS*

Prompt Service **Young Laying Queens**
Full Weight Packages **Your Satisfaction Guaranteed**
No Charge for Clipping

JOHN T. KNIGHT

Hayneville, Ala.

Jarvis Articles on Honey and Health

The series of articles by Dr. Jarvis on honey as an influence on bodily health have been so popular and request for reprints so insistent that we have combined most of these articles in a series of eight sheets, some sheets containing two, and some only one article. These reprints are available as follows:

- NO. 1 Use of Honey to Relieve Migraine
- Use of Honey to Produce Sleep
- NO. 2 New Use of Honey for Children
- Use of Honey in Feeding the Growing Child
- NO. 3 How to Age Slowly With the Aid of Honey
- Honey, the Ideal Food Supplement
- NO. 4 Use of Honey in Prevention of Polio
- NO. 5 Use of Honey in Maintaining the Efficiency of the Business Executive
- NO. 6 Use of Honey During Pregnancy
- Use of Honey when the Child Is Cutting Teeth
- NO. 7 Use of Honey in Infant Feeding
- Honey, a Medicinal Sweet
- NO. 8 The Use of Honey in Allergy

PRICES — ALL PRICES POSTPAID

AMERICAN BEE JOURNAL—Hamilton, Illinois



**LADYLIKE
CAUCASIAN**
bees and queens for
1952

Prices available about January 1st. Book orders early to avoid disappointment.

CAUCASIAN APIARIES
Castleberry, Alabama

PALMETTO QUALITY QUEENS

Be a thrifty one in '51! Use Ellison's Mott strain of three-banded Italians. No disease and guaranteed to please.

QUEEN PRICES

1 to 10	75c each
11 to 20	70c each
More than 20	65c each

C. G. ELLISON & SONS
Selton, S. C.

Caucasians, Carniolans

Hardy, prolific, rapid build-up, best of workers. Caucasians have the longest tongue of any race. Both build beautiful white combs. **BOTH ARE THE GENTLEST OF ALL RACES OF BEES**. Gentleness is safest in the near neighborhood of nests, streets or highways. Caucasians never time, sweat, patience and work. Prices, both races: Untested queens \$1.00 each. Tested queens \$1.75 each. By Air Mail.

Discount on Quantity Orders—Ask. More and more beekeepers request during September

Albert G. Hann Glen Gardner, New Jersey

**Northern Bred
Leather Colored Italian Queens**
75c Each

Air Mail if Distance Justifies.
No Charge for Clipping.

DIEMER BEE CO.
Rt. 2, Box 7 Liberty, Mo.

Treat Your Hives With

CUPRINOL

STOPS ROT

Applied by brush, spray or dip to the bare wood. Cuprinol will greatly lengthen the life of your hives by stopping rot. May be painted over. Does not offend bees. At hardware, paint and lumber dealers or direct. \$4.70 gal.; \$1.75 qt. Check or money order. No C.O.D.'s

CUPRINOL Division, Darworth Inc.
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American Rabbit Journal
Shows the Way to Success

Gives the latest news and views of the rabbit world—an illustrated monthly magazine of general and educational features. 1 year, \$1.00; 3 years, \$2.00; sample 15c.

American Rabbit Journal
DEPT. S. **WARRENTON, MISSOURI**

You Asked Us - -



Would the white fall aster do well in this section of the country as a honey plant?

H. M. Eames, New Mexico

For some reason the asters do not appear to yield much honey in the dry regions of the Southwest. There are several species native to that area but we find few references to them as attractive to the bees. The white fall aster does yield a great deal of honey in the southeastern states and as far west as Missouri. Apparently all the asters do best for the bees in regions of humid atmosphere. Pellett Gardens, Atlantic Iowa, offer seed of several varieties of aster if you wish to give them a trial.

About the most promising thing we have found for your part of the country is the Vitex incisa negundo which comes from China. It is a shrub or small tree which blooms for weeks in late summer and is always swarming with bees. It does very well in regions of light rainfall and is promising for that locality.

Can old granulated combs be used safely for winter feeding?

Oscar H. Clark, S. Dakota

Old granulated combs are not good for winter stores but might be used in the spring when bees can get out and get water. The best thing to do with them is to melt them down and use the honey for feeding in the spring. Bees should have good ripe honey for winter stores. If honey gathered late in the season has not ripened thoroughly by the time the bees cluster for winter, they may be fed a 10-pound pail of sugar syrup after brood rearing has ceased. They will store the syrup in the combs around their clustering space where it will become the first food used in winter. Thus they will not reach natural stores until late in winter or early spring when there are more frequent chances for flight.

What are the first signs of wax moth in the hive and what can be done to control it?

H. W. Lange, Texas

The first noticeable sign in the comb is uncapped cells of white larvae. On close observation, you can see streaks or lines of raised cappings, where the wax moth follows the midrib or center of the comb. These "runs" usually extend straight for a little ways and then zigzag through the comb.

There is no known gas or fumigant that can be used inside hives occupied by bees to kill wax moths. Anything strong enough to kill the moths would also kill the bees. There are fumigants that can be used in stored combs, however. Of these, paradichlorobenzene, chlorosol, and methyl bromide are the safest to use and most effective.

The bees are the greatest and most effective natural enemies of the wax moth. When the colony is strong, they will keep it rid of the wax moth.

This spring I installed two three-pound packages with new queens. Both started laying almost immediately, but lately I noticed that one of the hives has only about one-third its original number of bees and the egg and larva formation is uneven. What has caused this?

Paul F. Bourscheidt, Illinois

It looks as if the bees from the hive that is dwindling may have drifted to other colonies, especially if they are set close together. Also it may be that this colony has been robbed by another colony. You can readily tell whether this is true by looking for honey or syrup in the combs. Of course, the packages should always have the entrances shut down to about one bee space to prevent robbing and so that they can protect themselves. The queen might be at fault but this would not cause the loss of bees mentioned.

Is anything to be gained by using two full-depth Modified Dadant supers as hive bodies, thereby having twice the number of bees on one stand? Also, does the M. D. full-depth hive body supply enough room for the bees plus their supply of food and pollen for wintering?

Charles Hofmann, Illinois.

Full depth supers used as hive bodies are very fine if you have a prolonged honeyflow and if you have a fairly good colony to begin with in spring. Otherwise perhaps it would take too long to build the entire two bodies full of brood and you might not get the surplus. However, we have operated them that way at times and with very good success in a season of good honeyflow.

For years we used the old style Dadant and the Modified Dadant hive for wintering with only one body. Now we use one hive body with a shallow super or partially filled super of honey above. This assures that there will be no feeding needed until very late spring. In our operations with one hive body alone for wintering there was always difficulty in getting enough pollen and winter stores in the bottom brood chamber and also making an allowance so that there would be stores left for spring brood rearing. Too often we had to give them heavy feeding of sugar syrup in the spring. So we now recommend using a shallow super of honey above the hive body for winter. If the queen goes up into the super in spring, merely reverse the hive body and super until the brood has emerged.

What is the best procedure in adding package bees as a booster to packages hived earlier in the season?

E. H. Forby, South Dakota.

If you have no frames of brood to give your package bees, I would suggest adding a two-pound package of bees without queen to each colony. This can be done by the newspaper method.

Place a single sheet of newspaper over the top of your colony of bees, right over the frames. Be sure the paper completely covers the top of the hive. Punch two or three holes with a lead pencil in the newspaper. Then place a hive body with frames on the newspaper. Take out four or five of the frames and shake the bees from the shipping cage into the empty space. Gently replace the frames and put on the hive cover.

The bees will gnaw through the newspaper and unite.

Our Dadant's Starline Hybrids are Genuine A.F.B. Resistant Queens and are reared to Starline Standards.

Our Three-Banded Italians are Top Quality Queens and the result of long years of selecting and breeding.

Starline Queens 1-24, \$1.30 25-99, \$1.10 100-up, \$1.00
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No extra charge for clipping, painting and Air Mailing.

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Control Box Model of the Macy Electric Uncapping Knife

Ask for No. 108 Model — Price \$14.50

HUTCHISON MFG. CO.

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BETTER BRED QUEENS — THREE-BANDED ITALIANS

Watch those failing queens and poor colonies. Be sure and replace them with our Better Bred Stock and watch them pay off. Queens, 60c.

CALVERT APIARIES

Calvert, Alabama

NOW IS A GOOD TIME . . .

To REQUEST with Northern Bred Queens from HOLLOWPETER'S Hardy, Hustling, Honey gathering Italians. Quality and Service the very best during fall honeyflow. Young laying queens full of VIM, VIGOR, and VITALITY. 1-8, \$1.00 each; 10-94, 80c; 25-99, 80c; 100, 75c.

WHITE PINE BEE FARMS

— Rockton, Penna.

— Q U E E N S —

YORK'S QUALITY BRED ITALIAN QUEENS

The Strain that Leading Honey Producers Prefer
1-24—\$1.00 each 25-99—85c each 100 up—75c each

None better regardless of price

YORK BEE COMPANY Jesup, Ga., U.S.A.

(The Universal Apiaries)

When You Want
QUALITY at LOW COST
Look For This Sign



QUEENS

IMPROVED KELLEY'S ISLAND HYBRID STOCK

While these queens and their bees appear to be pure bred 3-banded Italians and are very gentle, they are exceptionally heavy layers and have other desired characteristics.

Each by Prepaid Air Mail from Paducah 75c

Lots of 25 and more, 65c each. 100 Queens, \$60.00.

THE WALTER T. KELLEY CO. Box 210, Paducah, Ky.

Jensen Says,—Requeen Now!

Requeen any time a queen is found doing poorly. But for wholesale requeening better pick a time when some nectar is coming in for best acceptance of the new queens.

Getting at least two cycles of brood hatched before cold weather slows up egg laying, is fine wintering insurance. More winter losses are attributable to poor queens than any other cause except the lack of proper stores.



Reg. U.S.
Pat. Off.

"Magnolia State" Italians		Dadant's Stock Starline D.R. Hybrids
1-24	— 95c each	\$1.20 each
25-99	— 85c each	1.10 each
100-up	— 75c each	1.00 each

Clipped and Marked Free, if indicated.



Jensen's Apiaries, Macon, Miss.

"The Business Quality and Service Built."

AUGUST LOTZ COMPANY

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Manufacturers
of

The LOTZ SECTION

No finer section made for producing
fast selling comb honey.

GLASS JARS

	Queenline	Economy
5-lb. Jars, per reshipping carton of 6	\$.59	
2-lb. Jars, per reshipping carton of 12	.76	.68
1-lb. Jars, per reshipping carton of 24	1.15	1.00
1/2-lb. Jars, per reshipping carton of 24	1.04	.92

TIN CONTAINERS

Friction Top Pails with Bails	
5-lb. — Per Carton of 50	— 12c each — \$ 5.30
5-lb. — Per Carton of 100	— 12c each — 10.40
10-lb. — Per Carton of 50	— 17c each — 7.50

Box of Two 60-lb. Square Cans	\$ 1.75
60-lb. Square Cans, in bulk, each	.60
60-lb. Square Cans, per carton of 24	14.40

Screw on Honey Gate for 60-lb. can — 2 1/2" 2.00

10% discount on orders of \$100.00 —

5% discount on orders of \$50.00

How - to - do - it

For Shade . . .



William Frank, of Iowa, sent in these pictures of his bee yard. Shown are the burlap sacks he uses to shade the hot side of his hives. Note also the individual shade boards on top of the covers. A good idea where hives are in direct sunlight.

Wintering Nuclei . . .

I have successfully wintered nuclei by double screening inner covers on strong colonies and placing the nuclei above the covers with a flight hole of their own. Most of them come through O. K.

L. R. Stewart, Indiana

Extracting in Cool Weather . . .

I have found a use for the Aladdin lamp that had been stored in the attic. For two or three reasons we extract our crop of usually about 1,000 pounds during the cool days of October. My wife and I do the extracting on our back porch after letting the stacked hive bodies warm up overnight in the kitchen. We had trouble because the honey was too thick to run into the jars out there in the cool air where it is so pleasant to work. We thought of buying a tank with heater but counted the cost. Then one snappy morning I remembered that Aladdin lamp. It puts the heat under our extractor which has a concave bottom and rests on a table about 15 inches high with about 6 inches extending beyond the edge of the table. The lamp keeps the honey just right for running through the cheesecloth which we fasten over a cone-shaped strainer. We run it directly into glass jars.

Henry T. Miller, Indiana

Record Crop

The late Dr. C. C. Miller, the "Sage of Marengo" (Illinois) and a brilliant writer both in this magazine and in "Gleanings in Bee Culture" for many years, as well as the author of the book "Fifty Years Among the Bees," has long been recognized as a setter of records for per colony production of comb honey in sections. From 72 colonies in 1913 he got an average of 266 sections of comb honey per colony for the year with his best colony giving him 402 sections.

Now Carl E. Killion, amiable Chief Inspector of Apiaries for Illinois, is reaching for that record if he has not already surpassed it by the time this is in print. On July 30, a telephone conversation with him revealed that as of that date his 100 colonies run for comb honey had each given him 11 full supers of comb honey, and that his average per colony for the year was already 264 sections. Mr. Killion is a disciple of both Dr. Miller and his immediate predecessor, Charles Kruse of Paris, Ill., to whose bees he succeeded, though he has some "kinks" in comb honey production of his own.

Mr. Killion has recently written a book on comb and bulk comb honey, "Honey in the Comb."

In the spring he had 100 colonies in three apiaries run in double bodies. When these were cut down to single bodies, and comb honey supers added, the extra brood was used to start 25 colonies of increase, three stories high. These were later used again for increasing another 25, the original 25 being cut to one story and run for comb honey. So the original 100 colonies have done more than set a record for themselves in comb honey production. They have also helped build an additional 50 colonies. Certainly it must take unusual conditions to produce such results, but also a keen knowledge of what you are doing.

Records are made to be broken. We see it in horse racing, or in baseball. Now Killion is doing it in comb honey production in partnership with his sons as well as with Mrs. Killion, who folded some twenty thousand sections and fitted them with foundation, and who does the bulk of the scraping and classifying of the finished crop.

More power to them. We hope they may duplicate or exceed the record another year.



Carl Killion and his son Gene demonstrate one of their comb honey colonies, showing the average number of comb honey supers each of the 100 colonies produced.

Dr. V. G. Milum, Apiculturist at the University of Illinois, examines some of the comb honey from the record crop and tells Gene: "I never saw more beautiful comb honey in all my life."



YOUR CHOICE of Three Outstanding Breeds THE BEST TO BE HAD AT ANY PRICE.

REGULAR ITALIANS:

Our regular stock, bred for high honey production, will not swarm unless neglected. Positively gentle.

CAUCASIAN:

We are using the best breeding stock to be had in America. These bees are grey in color and very gentle. Heavy producers.

PRICES:

	Italian Queens	Starline Queens	2-lb.	3-lb.	4-lb.
1-94	90c	\$1.30	\$4.00	\$5.00	\$6.00
25-99	90c	1.15	3.75	4.75	5.75
100 up	75c	1.00	3.50	4.50	5.50

RICH HONEY FARMS

DADANT'S STARLINE HYBRIDS ARE DISEASE RESISTANT



This is a combination of Italian strains, each with outstanding traits. These are combined by artificial mating of the queen and drone mothers to assure you of uniformity in performance and to maintain the lines in a pure state. Nothing is left to chance. The standards of the originators of this stock are very high and exact. Do not confuse this breed with the old resistant lines. These are uniform and gentle. May be worked in favorable weather without gloves and veil. When ordering Starline Stock include 25c extra for each queen with package.

Jeanerette, Louisiana



Wise-Woodmanize with Your Bee Supplies"

A. G. Woodman Co.

(Send for Catalog—350 Listings)

Grand Rapids 4, Mich.



John M. Davis Strain

ITALIAN QUEENS

1-94 2-lb. \$1.25

90c \$1.25

DAUGHTERS OF ABBA

SELECTED STOCK

1-94 2-lb. \$1.40

90c \$1.40

LITTLE APIARIES

Shelbyville, Tenn. P. O. Box 122

PACKAGE BEES QUEENS

JACKSON APIARIES
Funston, Georgia

PACKAGE BEES — QUEENS
Caucasian Italian Austrian
A queen of Merit in each package—
2-lb. pkg. with queen \$3.00
3-lb. pkg. with queen 4.00
Untested queens 1.20

THE COFFET APIARIES
Whitsett, Texas

ITALIAN PACKAGE BEES and QUEENS

John S. Shackelford
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WANTED Thousands of Rabbits
and other Small Stock,
Poultry and Birds. Let

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Bring you the Monthly News of Rabbit,
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and Other Pets.

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Dadant's for Honey Labels
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"Honey in the Comb"

By Carl E. Killion

Have you ordered your copy of
this book? Do not delay!

Order now and prepare to produce the kind of honey the public wants. Honey in the comb finds a ready market. It is the finest quality that gets the premium price. This book should help you produce that kind of honey.

Price of the book is \$3 postpaid.

Killion & Sons Apiaries
Paris, Illinois

CAUCASIAN

Queens remainder of
season 75c each

D. T. WINSLETT
7736 Auburn Road
Citrus Heights, Calif.

STANDARD
Beekeepers Equipment

It pays to use the complete line of
STANDARD equipment. Ask your
dealer about this quality line today
or write us for catalog and prices.

Standard Churn, Inc., Wapakoneta, O.

3-BANDED ITALIAN

Queens	\$1.00
2-lb. pkg. with queen	3.00
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This is the Month

by Frank E. McLaughlin

Here it is, September again. Fall is here. Where in the world did the summer go? It seems only a month ago we were watching for the bees to start bringing in pollen. Now the season's work with the bees in the outyards is rapidly coming to a close for another year. The older I get, the faster time flies.

Well, the honey crop here in this locality, which seemed so promising in the spring, certainly turned out to be a flop. There was a great deal of clover in bloom, but it rained almost constantly for nearly six weeks. My bees produced no surplus honey. They have managed so far to get enough to eat, but haven't enough, I'm afraid, to last them through the dearth of nectar. If we don't have a fall flow, I'm sunk. About everyone here in my locality is also crying the blues. It's just one of those seasons when the weather wasn't with us. If you read the newspapers you know how much it rained around Kansas City about the worst flood in the history of K. C.

On July 20, Mr. W. F. Matthes, of Pleasant Hill, Mo., suffered a heart attack and passed away. He had been a commercial beekeeper for many years. He and his family have been good friends of mine for several years. Mr. Matthes was a past president of the Missouri State Beekeepers Association. He had sold honey at the Kansas City market for 28 years. A man of only 60 years, he had many ambitions and always loved to talk beekeeping to his many friends. As with most men of high ideals, he left many accomplishments unfinished.

Fall Nectar Sources

In a great majority of localities the main honeyflow is over and the dearth of nectar starts around the first of August. That is the period when there is no honey available for the bees to bring in. Then the bees use stores in the hive heavily until the fall plants start secreting nectar. Plenty of stores for this purpose should have been left on the bees when the early honey crop was removed. In most parts of the country, there is a fall honeyflow, varying in quantity.

A good way to tell when the honeyflow is over, is to observe the way the bees act toward the drones. The worker bees will drive them out of the hive. This also happens when winter weather starts. The bees seem to know the drones' usefulness is over and that they will only stay in the hive and eat the stores needed for the worker bees in winter. So poor papa is driven from the hive and left to die of starvation.

There are several species of goldenrod which bloom in the autumn and provide both nectar and pollen. The secretion of nectar is not nearly so heavy in the midwestern states as in other parts of the U. S. The early variety begins blooming in late summer.

Then there are the different varieties of wild aster. Aster honey is very light but often becomes mixed with goldenrod or other fall flowers which makes the honey amber in color. Aster honey is very heavy bodied and will crystallize rapidly. Aster bloom longer than most fall flowers and it takes a heavy frost to kill the plants.

Heartsease, commonly called smartweed is another fall blooming honey plant. Heartsease grows in waste places in many parts of the U. S. The honey obtained from it is amber in color and for those who appreciate stronger flavored honey, the flavor is good.

Honey from Spanish needle, another fall plant, is well liked by my family. The honey is golden in color, has a fine flavor, is a little strong, and is very heavy in body. It is difficult to extract and strain. Spanish needle grows profusely in wet places. It blooms from August to October. Most fall honey is darker, heavier in body, and slightly stronger in flavor than honey produced by the clovers.

Fall Requeening

Fall is a good time to requeen your colonies with young queens. Better success will be obtained if requeening is done during a honeyflow. They will be much more likely to be accepted.

I have good success in introducing queens by spreading the frames apart in the center of the colony,

pushing them to either side, and sliding the cage, candy side up, between the center frames and at a slight angle, then pushing the frames together enough to hold the cage. When the bees eat through the candy in the cage the queen is released without delay. Sometimes when the cage is introduced candy side down, an attendant bee may die, and fall in the hole in the end of the cage and the queen cannot get out.

However, I have had good luck in introducing queens by running a wire through the cage, and hanging the cage suspended between the frames, wrapping the loose end of the wire around a tack driven in the top of one of the frames.

In any case the colony where a new queen has been introduced should not be molested for about a week.

In my experience, colonies requeened in the fall winter better for they go into the winter with young bees that can withstand cold and come out stronger in the spring. They make fine colonies for the honeyflow the following season.

Payment for Pollination . . .

Maurice Perry of Hemet, California has specialized in alfalfa seed production for many years. He is progressive in a way that gets results in production. In 1948 he made a voluntary offer of payment for bees for pollination on a sliding scale. The plan seemed to have possibilities.

For all seed production above recent averages (400 pounds at the time), 1 cent a pound of seed per colony for bees in the field was the offer. Yields have increased markedly since the use of DDT for lygus bugs. About three colonies to the acre were placed in groups along three drives across 95 acres. The yield was 540 pounds of seed which meant a payment of \$1.40 per colony.

Part of the alfalfa is in rows where cultivation and weed control and soil moisture conservation can be carried out. The Hemet area seems well adapted to seed production. It is in southern California, one of the most thickly populated bee ranges in the state. The summer is long, warm and almost rainless. Better pollen sources than alfalfa are frequently scarce during the time of seed setting.

Geo. H. Vansell, California.



MILLER REARED-DADANT STARLINE HYBRID QUEENS

A New Line of Resistant Bees
BRED IN ISOLATED YARDS

Starline Queens 1-24, \$1.30; 25-99, \$1.15; 100 up, \$1.00
Italian Queens 1-24, 95c; 25-99, 90c; 100 up, 75c



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HOWARD WEAVER'S CAUCASIAN QUEENS

1 - 24	\$1.00	No charge for clipping or marking.
25 - 49	.90	
50 and up	.80	Air mailed on request.

HOWARD WEAVER — Navasota, Texas



ITALIAN QUEENS — PACKAGE BEES

	1 to 49	50 to 99	100 and up
2 lb. with queen	\$2.50	\$2.25	\$2.00
3 lb. with queen	4.50	4.25	4.00
4 lb. with queen	5.25	5.00	4.75
5 lb. with queen	6.00	5.75	5.50
Italian queens	1.10	1.10	1.00

Packages are shipped with full liberal over-weight and live arrival guaranteed. Our dealings with you must be 100% satisfactory. Replacement or refund on any shipment when bad order receipt is received by us. Our queens are second to none in performance. Queens clipped on request and sent airmail postpaid.

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Maximum production is most easily assured with superior bees and queens. That's one way we try to help you make money. Superior bees and queens is our motto at all times. We like to have 50 per cent deposit and balance before shipping date. We believe this is fair to all—as we like to plan and ship the day you want shipment. Price scale:

Queens, any number \$1.00—Tested Queens \$2.00
2-lb. package and queen \$3.00 any number
3-lb. package and queen 4.00 any number

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Light colored Italians or Kelleys Island hybrids.

Airmailed — postpaid — clipped: 65c each.

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A FAMOUS STRAIN OF YELLOW ITALIANS

now available at 25% discount off regular prices shown below

1-5 — \$1.35 5-15 — \$1.30 15-25 — \$1.20 25-100 — \$1.15
100 up — \$1.05 SELECT TESTED QUEENS — \$5.00, no discount

THE DANIELS APIARIES

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Dadant's Foundation for Bulk Comb Honey

For bulk comb honey for glass containers and for cut comb honey for cellophane wrappers or cartons. This is a special, light colored foundation, somewhat heavier than Surplus, but lower in price. Bulk comb honey packed in glass must be white and beautiful, and it must be surrounded with an equally fine grade of liquid honey. Then you have beautiful packages that customers just want to buy.

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American Bee Journal

All Around The Bee Yard

by G. H. Cale

Years ago I visited Ross Morrill in eastern Illinois. He was sitting on top of a hive with his legs curled under him. I asked why he looked so forlorn. All his hives were piled high with supers and looked prosperous. His reply was: "Isn't there a way to keep these darn bees from storing honey? I have every super I own on them and several nail kegs full of swarms. And still the crazy things store honey!"

In some ways this year is like that in some places. Beekeepers who visit here tell such different stories. Yesterday two men said that they would scarcely get enough stores for winter. The entire country in their sections has been flooded and nothing is producing, even for the farmer. This morning a lady in central Illinois phoned for supplies with the report that, like Ross, every piece of equipment she owns is on the bees. Please hurry up more supers.

It has been wet and rainy all year and it is still wet and rainy. The air has been so moist that water collects on warm skin and runs off in rivulets even at a temperature in the eighties. That also brings its problem. Honey naturally gathers moisture and so stored honey remains "green." It has a high water content even when thoroughly sealed. The best way to do, in this case, is to leave the honey on the hives just as long as possible. The bees will ripen it more that way. Unless you have a fall flow (and you will have one in the river lands this year) don't take the honey off until late in September.

I have been helping Mrs. Pellett classify Frank's manuscripts and papers and his numerous letters to folks the world over. According to the letters, he began to collect honey plant information about 1915 and the result was the first edition of "American Honey Plants." This was followed by other editions and as his training grew it culminated in the Test Gardens at Atlantic. So for forty years a pioneer effort was followed painstakingly and persistently until something new appeared in the world. The return to Frank in renown was mighty, but the return in financial reward was mea-

ger. So is the great work done in the world.

This government support price does help. Offers for honey from 10½ to 12c are not infrequent. The larger the crop the more chance there is to get a profit from such prices. The poor fellow with no honey can't make expenses at any possible price. Those with a short crop stand more of a chance of getting enough from their bees to return what they cost. It is different than it was when most crops failed to return costs. Then there were more beekeeping outfits for sale than had ever before been offered. It looked as though the entire farm program was to suffer for want of pollinators. Now, in contrast, only a few bees are for sale.

The stuff that is put out as bulk comb honey! Floating chunks of ragged combs in half granulated amber liquid! Yellow capped and irregular pieces from which bits of wax add unsightly specks to the honey surrounding them. The time was when one could buy two "cards" of section comb honey for a quarter! Ever buy any? The honey was poor, the quality was atrocious, the wax was tough. It was scarcely worth a quarter for two pieces of such a mess. As the years passed, such conditions naturally brought slow and indifferent markets for comb honey. Beekeepers turned to the extracting super. Also many who had been producing bulk comb piled up the equipment and quit. Now once more the tide is the other way. Will we again throw opportunity to the winds?

Dr. Warwick Kerr has been here. (See the account in the August number, page 347.) The name is familiar English; the man is Portuguese. Ten months ago his English was illimitable; today it is almost as good as ours. He is an Associate Professor of Genetics in the University in Sao Paulo. Chosen as a Rockefeller fellow he is spending eighteen months among us. And he is twenty-eight! So the palm of intellectual conquest these days goes to the youth of all lands.

When he and Bud Cale got together expounding genetical ideas about bees and discussing the breeding of bees, the English language became transmuted into a scientist's dialect in which the ordinary man finds no footing.

That leads me into thoughts about our Starline stock. Not that I want to use "All Around the Bee Yard" as an advertising medium, but because it is the only genetically produced stock with which I have experience. Likely what I see in it may be duplicated in any well-produced stock.

Perhaps its first characteristic is that it is "fast on its feet." In other words the new queens lay at a high rate, with solid brood, that turns out bees like a factory production line. This year, Starline packages, hived on drawn comb and fed sirup, have outproduced regular stock packages hived at the same time and boosted with combs of brood and bees. Also they have a steady production rate. Both of these qualities are definite improvements. Supersedures seem to be low and they are fairly resistant to American foulbrood. The job is to include reasonable resistance, high production, and other desirable characteristics.

Made some two-comb nucs in June with new queens and set them by themselves in an orchard about three miles out of town. As they needed room, more combs and foundation were added. Some of them now have supers on. By late fall they should be fair colonies with stores for winter. Later I made other nucs and gave them queen cells from selected stock and the virgins were allowed to mate near our Starline yard. They may not make full colonies by winter, but they can be assured of stores, either by gathering or feeding, and will be wintered over screens over strong colonies. These new colonies will be fine next year. They were made a year ahead of need, but they will go towards replacing losses in spring and perhaps giving some increase. Anyway, it is a relatively inexpensive way to replace ahead of time.

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3-WAY HYBRID QUEENS

Requeen your colonies with the queens developed on Kelleys Island, Ohio.

We have recently received new breeder queens and plan to have queens available all Fall.

Do not confuse these queens with other Hybrids. Specify Kelleys Island 3-Way Hybrids.

Prices for balance of season — 3-Way Hybrid or Regular stock postpaid.

1- 26	-----	\$1.00 each
26-100	-----	.90
100 up	-----	.85

We wish to thank our many customers for the nice business given us this spring. If you were pleased tell others, if not tell us. It is our desire to please.

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NOTICE



American Bee Breeders Ass'n

Will Accept Orders for
500 ABBA Queens at \$1.50 Ea.

For three years ABBA has conducted comparison tests of strains of bees donated by many shippers, selecting and breeding from those that appeared to be the best.

The queens we offer are bred from mothers that produced a surplus of 60 lbs. of honey over others in our test. They are mated with drones from mothers that reached a capacity of 2000 square inches of brood.

Queens will be shipped from our breeding yard in Tennessee.

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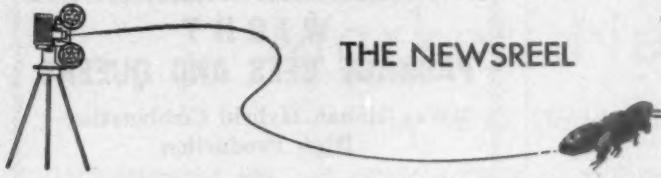
We render old combs, cappings, and slumgum for beekeepers. Our steam wax presses get every available ounce of wax out of this material.

If you are rendering your own or having this work done elsewhere, give us a chance to show you what we can do. We specialize on SLUMGUM from presses that are not operated under water. We often get from 10 to 40 per cent wax from such material.

Send for terms. Ship us your Beeswax.
Prices are high.

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Hamilton, Ill.



THE NEWSREEL

Approved Honey Packers . . .

The United States Department of Agriculture, Production and Marketing Administration, Washington, D. C., has just issued notice FV-3 giving lists of approved honey packers under C.C.C. price support program SCP-66-A. Any one interested in a list of these should address themselves directly to the Department as above.

Some 22 states are represented with a total of 70 or more packers.

The Giant Hornet . . .

On page 250, June 1951 ABJ, is a brief article about the giant hornet. It may interest readers to learn that this hornet is now in this country. I first made its acquaintance about 20 years ago. I never saw a nest but saw one of the hornets occasionally. This insect is almost identical with our white-faced black hornet. It is a little larger than our hornets.

I was rather amused two years ago to have a grandson of mine show me what he called a cicada wasp. He had taken the insect to school to display it. He was a trifle dismayed when I told him that it was not a cicada wasp but the European hornet. I later carried to my grandson a specimen of the cicada wasp, a hornet-like insect that is twice as large as our biggest hornets. It has to be large to be able to fly home with a cicada to put into the burrow made for the young.

My grandson lives on Long Island and soon after that a nest of the big yellow hornets was discovered on the island.

— Allen Latham
Connecticut

Availability of the New Glass Color Standards Equipment

Permanent glass color standards for extracted honey which were described in the article on page 334 of our August number are now available. Information as to the price and availability of the sets of color standards may be obtained from the Phoenix Precision Instrument Company, 3803 North 5th Street, Philadelphia, Pennsylvania.

Abbott on Queen Breeding

"Queen Breeding for Amateurs" is the title of a second edition of this 60-page paper bound book. C. P. Abbott has made considerable and desirable changes in this edition which is available from the publishers, Bee Craft Magazine, Bracken Dene, Manor Way, Petts Woods, Kent, England, at a price of 75 cents.

It is a quite desirable easily understood book, following largely orthodox methods with interpolations for the amateur.

Honey "Crop of the Year" in Michigan . . .

The Michigan State Fair Board has allotted \$1,000 this year and selected honey to be the "Crop of the Year" for Michigan. This, in addition to the usual \$1,000 which the honey department already has for premiums, should make for a lot of publicity for honey as the "Feature Crop." Needless to say, the Michigan State Beekeepers Association is putting forth every effort to make the campaign a huge success. The Agricultural College at East Lansing as well as the horticultural and farm crop sections are cooperating in the pollination theme.

Bad Loss from Insecticides

The beekeepers in our San Bernardino Valley are worried about the effects of parathion spray. Just last week, a Mr. Charles Hurd lost 200 colonies located near a plum orchard, not yet in bloom, but infested with scale. The ground was covered with blooming mustard. He had several hundred colonies at his home place about two miles away and they too were poisoned and were in poor condition. I have not heard this week whether they died out or not. Another friend had bees on the oranges and they were nearly killed and he thinks they were near where parathion was used.

Our County Commissioner knows the value of bees and has issued a directive prohibiting the use of parathion and other injurious killers that would cause such results as Mr.

Hurd had. We don't want the fruit and vegetable men to lose their crops because of insects, etc., but we must educate them that our bees are valuable and that we have a right to our livelihood too.

Mrs. W. D. Miles, Calif.

New Iowa Apiarist Report Issued

The "Report of the State Apiarist for the Year Ending December 31, 1950," has just been issued by the State of Iowa. It is edited and compiled by F. B. Paddock, State Apiarist of Iowa, and its 142 pages contains a world of information for beekeepers everywhere. Although mailed to Iowa beekeepers primarily, we presume that a limited supply of this report is available by writing to Mr. Paddock, Iowa State College, Ames, Iowa.

The 1950 report mainly is devoted to the publication of the papers presented by beekeepers, seed growers, and scientists at the pollination conference held at Tucson, Arizona, in the fall of that year. They cover the pollination problems and methods with respect to alfalfa, fruits, clover, vetch, cucumbers, watermelons, and cantaloupes, and the place of honey bee pollination in programs of soil conservation and range and land management.

In addition to the 18 articles presented at the Sixth Annual Pollination Conference at Tucson, there appear 14 additional papers including the report of the State Apiarist. The report of the State Apiarist presents in detail the excellent work that is being carried on in Iowa—ranging from honey production and 4-H Club work to use of bees in legume seed production and disease-resistant bees.

The other articles include beekeeping notes from Mexico by C. R. Kellogg, early American beekeeping by H. Malcolm Fraser of England, a picture of beekeeping in South Carolina and Arkansas by W. H. Purser and J. H. Davis, respectively, some observations on honey labels and containers by F. R. Shaw, the use of pollen supplements by E. A. Wolfe, and a number of articles on pollination of vetch, Ladino clover, red clover, and alfalfa.

The American Bee Journal regrets that space does not permit greater detail about this important publication, and congratulates F. B. Paddock and Iowa while urging interested readers to attempt to obtain a copy for their library.

Don't Forget



When you are packaging this year's crop be sure that the containers and label are attractive. To assure yourself of a ready market, consult our Catalogs of Containers and True Character Labels. If you do not have them, ask for your copy now.

American Bee Journal

HAMILTON, ILLINOIS

HONEY BEESWAX SUPPLIES

SUPERIOR HONEY COMPANY

FOUNDED FOR THE BEEKEEPING INDUSTRY OF THE WESTERN UNITED STATES.

A MARKETING OUTLET FOR ALL TYPES OF YOUR HONEY.

A MARKETING OUTLET FOR YOUR BEESWAX.

A SOURCE FOR YOUR SUPPLIES AND EQUIPMENT.

We are in business to serve you.

Visit our plants.

Ogden, Utah; Idaho Falls, Idaho; Denver, Colorado; Los Angeles, California; Phoenix, Arizona; and our Wood Goods Mill in Madera, California.

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3-Way Italian Hybrid Combination—
High Production

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1-24	\$1.20	2-lb.	\$4.50
25-99	1.15	3.25	4.35
100-999	1.00	3.00	4.00

For additional bees add \$1.00 per lb.

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Lower Prices — For our own reliable 3-Banded Italian Queens and Packages with Queens, deduct 25c each from the above price schedule.

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25-99	96c
100 up	75c

All queens are clipped and marked unless requested not to.

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406 Miller St. — Hattiesburg, Miss.
SERVICE QUALITY DEPENDABILITY

REQUEEN NOW

As soon as you get your honey off, requeen those colonies. A vigorous young queen will mean a lot of young bees this fall for good wintering. Don't take a chance on an old worn-out queen.

ITALIANS CAUCASIANS
ITALIAN HYBRIDS

— PRICES —

1 -24	\$.75 Each
25 -99	.70 Each
100-Up	.60 Each
Tested Queens	1.50 Each

Queens Postpaid, Airmailed and/or Clipped
—No Extra Cost

THE STOVER APIARIES

Mayhew, Mississippi

Market News

by M. G. Dadant

Crop Compared to 1950

Living in a section of the country where the crop undoubtedly will be much heavier than it was in 1950 gives the impression that the total crop for the United States will be a "bumper" one, far beyond that of last year which in itself was a large crop. The white clover sections extending from Maine to the Missouri River have had a far better crop than a year ago, although many disappointments have been encountered due to the cold and rainy weather. This makes exceptions in many instances. Southern Michigan has been disappointed as has southern Iowa. Beekeepers in Missouri, Kansas, Nebraska and part of North and South Dakota are disappointed in their crop and the conditions in that whole area extending into Colorado, Utah, Nevada and down into Arizona and New Mexico will cause the crop to be far less than a year ago. This extends into California, particularly the desert sections and also into north central California where the crop may not be over 80 per cent of a year ago. Oregon and Washington had nothing to boast of in the way of bumper crops.

Texas is a disappointment in that there was a complete failure of sweet clover followed by dry weather, and although cotton yielded well, the total crop probably will not be over 50 per cent of last year. Across the South, however, we find better conditions in Arkansas, Louisiana, Alabama, Kentucky, and Tennessee, and particularly in southern Georgia and Florida where the crop is much better than it was a year ago.

Montana and Idaho seem to be the favored sections this year, Montana particularly. Here we have some reports of yields as high as the old time yields of 300 and 400 pounds per colony, although these are not the average. In the Canadian provinces, conditions are satisfactory throughout, although Saskatchewan and Manitoba report not quite the rosy conditions of other provinces. However, the crop will be much better than a year ago. Fortunately the Canadian market is well cleaned up and in a position to receive the better crop.

All in all, there may be as much

honey as a year ago and we assume that the government reports may show this, although already some of the short sections are beginning to hunt around for honey. This is true in Texas where liquid honey is needed to pack with such bulk comb as has been harvested. The drought in Texas, westward through Colorado, New Mexico and Arizona, and southern California, has been a decisive factor in cutting the crop there and, of course, prospects for the near future.

Balance of Season

The fall crop areas of the Central West undoubtedly will have an opportunity for a better crop than a year ago because the earlier rains through June and July favored the growth of plenty of weeds, including heartsease and Spanish needle in the cornfields and stubble fields. It is doubtful, however, whether this will be one of the old-fashioned "heartsease" years when everyone gets a bumper crop. Bees will likely go into winter quarters in better condition throughout all the central western areas because of the possibilities of a satisfactory fall crop.

Honey Offerings

Few buyers are out for honey as yet in view of the anticipated heavy crop. Most offerings parallel the government support price which is 10.1 cents for white honey. We learn of some honey selling at 12 cents a pound, a complete car from Montana going at 11 cents, and another being offered at 12 cents f. o. b. Montana shipping point. However, this is for new honey and little new honey was available at the time the offer was made.

In California the finest orange honey is being offered at 12 cents, but most offers are in the neighborhood of the support price. We find the lowest quotations in the case of those who are not in a satisfactory position to take advantage of the government support prices, namely those who produce in less than carlots and are far from a market

where the support price can be maintained. Outside of this, however, there is little doubt that the market is starting at a price near the support price and many beekeepers are looking for an advance. Eastern and central western markets used to base their beginning prices in the fall on the California honey which in many cases was dumped on the eastern markets at low prices. Conditions, however, have changed materially in this respect. In the first place, there are more large buyers and handlers of honey in the western areas than there used to be. In addition, beekeepers themselves are better posted, and in the third place, the California population has increased to the extent where much of the California crop is consumed at home. California growers are up-to-date in their offerings of honey, might we say much more so than many of our other communities farther east.

It is a little early to make any suggestions on retail prices. Most of the suggestions coming in to us are on the basis of about the following in retail stores: 1 pound, 40 cents; 5 pounds \$1.25 to \$1.50; 10 pounds, \$2.00 to \$2.25; 60 pound cans, \$9.00 to \$12.00; section honey 40 cents to 50 cents; bulk comb, 5 pounds, \$1.75. We learn of some bulk comb being offered at 15 cents, but most of the bulk comb honey is holding for an 18 to 20 cent price and undoubtedly will get it.

Summary

All in all, while the crop may be larger than last year, it will be larger in those communities which probably are better able to handle the distributing end. The big producers are not faring too well except in Montana and Idaho, as mentioned previously. Wyoming might be added to this.

Government sustaining prices no doubt have had their effect on the market but it will be too bad if beekeepers have to depend upon them. We need to get out and hustle and sell our honey. There is no reason why the present crop cannot be moved in view of the fact that most of the old crop was quite well disposed of before the new crop appeared.

Honey Wanted—Cars and less than car. Top Prices.
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FOR SALE—Electro Flo Filling Machines. Designed for honey. Fill containers automatically. Write for information or see in operation. Hancock Honey House, Hancock, Iowa.

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**STATEMENT OF THE OWNERSHIP,
MANAGEMENT, CIRCULATION, ETC.,
REQUIRED BY THE ACTS OF CON-
GRESS OF AUGUST 24, 1912 AND MARCH
3, 1933 of American Bee Journal, published
monthly at Hamilton, Illinois, September
1, 1951.**

STATE OF ILLINOIS.
County of Hancock—ss.

Before me, a notary public in and for the state and county aforesaid, personally appeared M. G. Dadant, who, having been duly sworn according to law, deposes and says that he is the business manager of the American Bee Journal and that the following is to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the name and addresses of the publishers, editors and business managers are:

Publishers: American Bee Journal, Hamilton, Illinois.

Editors: G. H. Hale, Hamilton, Ill., M. G. Dadant, Hamilton, Ill., R. A. Grout, Hamilton, Ill.

Business Manager: M. G. Dadant, Hamilton, Ill.

2. That the owners are: Dadant & Sons, Inc., Hamilton, Ill.

3. That the known bondholders, mortgagees and other security holders owning or holding one per cent or more of the total amount of bonds, mortgages, or other securities are:

Stockholders:
H. C. Dadant, Hamilton, Ill.
M. G. Dadant, Hamilton, Ill.
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R. A. Grout, Hamilton, Ill.
Louisa G. Saugier, Hamilton, Ill.
Adelaide D. Fraser, Hamilton, Ill.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books and securities in a capacity other than that of bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

(Signed) M. G. Dadant,
Business Manager American Bee Journal.
Sworn to and subscribed before me this 20th day of August, 1951.

MINNIE S. KING, Notary Public
My commission expires January 5, 1951.

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Curiosity

Curiosity killed the cat but as yet nothing more serious than a few bee stings has befallen this one. His name is Lucifer and he is a pet of Barbara Cunningham of Nova Scotia who sent us the picture. Barbara's father keeps bees.

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A Bee in Her Bonnet

This shot of Miss Piper Laurie and Wendell Shore, of Hamilton & Company of Los Angeles, was taken last October in connection with publicity for National Honey Week. As president of the California Honey Packers and Dealers Association, Mr. Shore was supposed to be putting a bee in the young lady's bonnet with regard to facts about honey. He writes us that the oversize skep was made of plaster and that the bee was not a bee at all but a beetle which he held carefully to resemble a bee. However, who would look at it under the circumstances?

The photograph was made by Universal Pictures Company, Inc., who also furnished the beetle-bee from their studio property department. Miss Laurie has achieved a notable success in pictures although she is only 18 years old. She has starred in such pictures as "Louisa" and "The Milkman" and is currently working on another.

National Honey Week will soon be here again. Maybe we all can't enlist the help of film stars in our publicity but we can and should make a special effort to push our product during the fall months.

American Bee Journal



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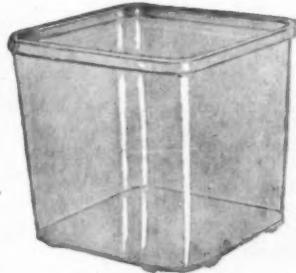
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